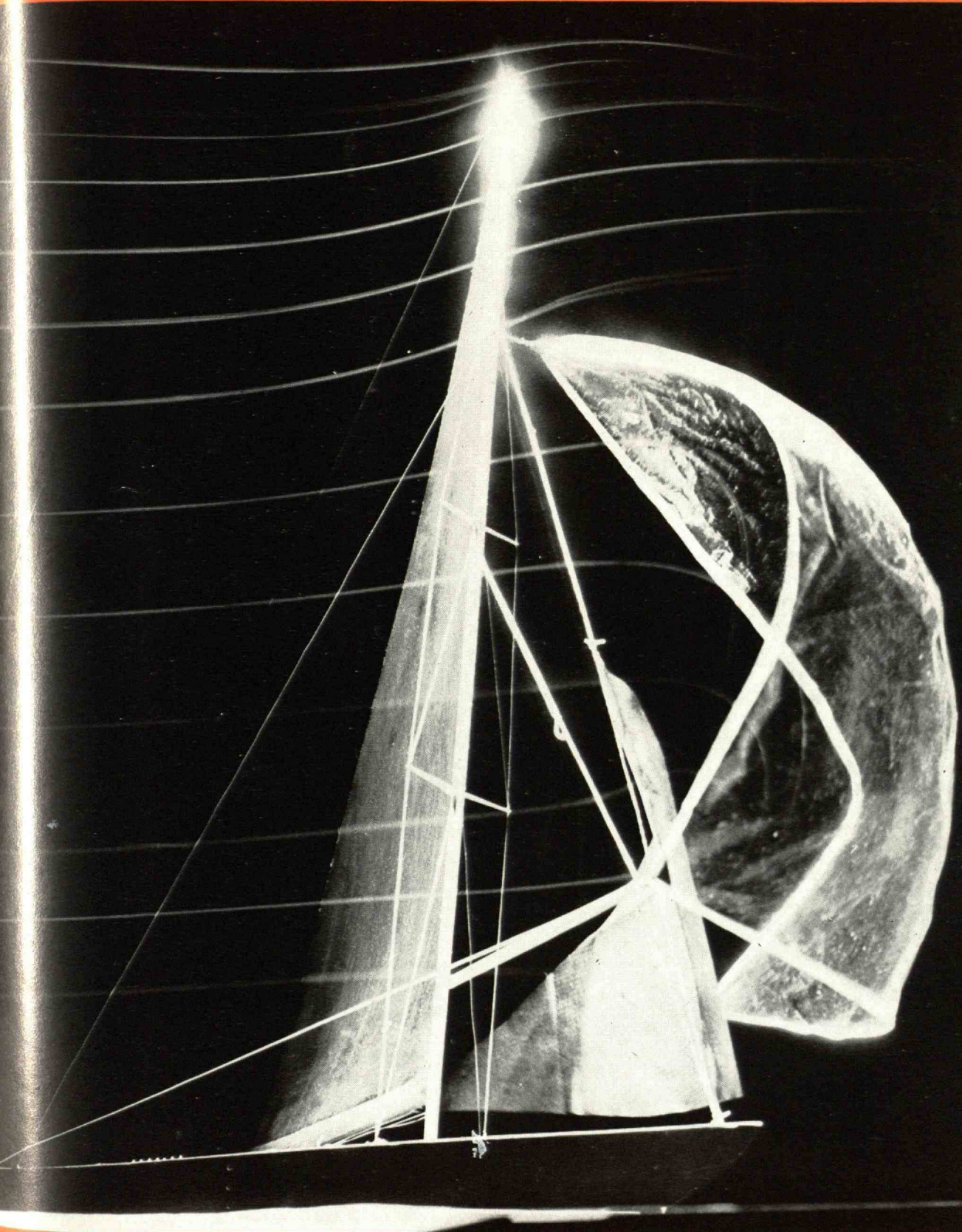


Technology Review

Edited at the Massachusetts Institute of Technology



May, 1965

Fast Sailing, Page 17

technology review

Published by MIT

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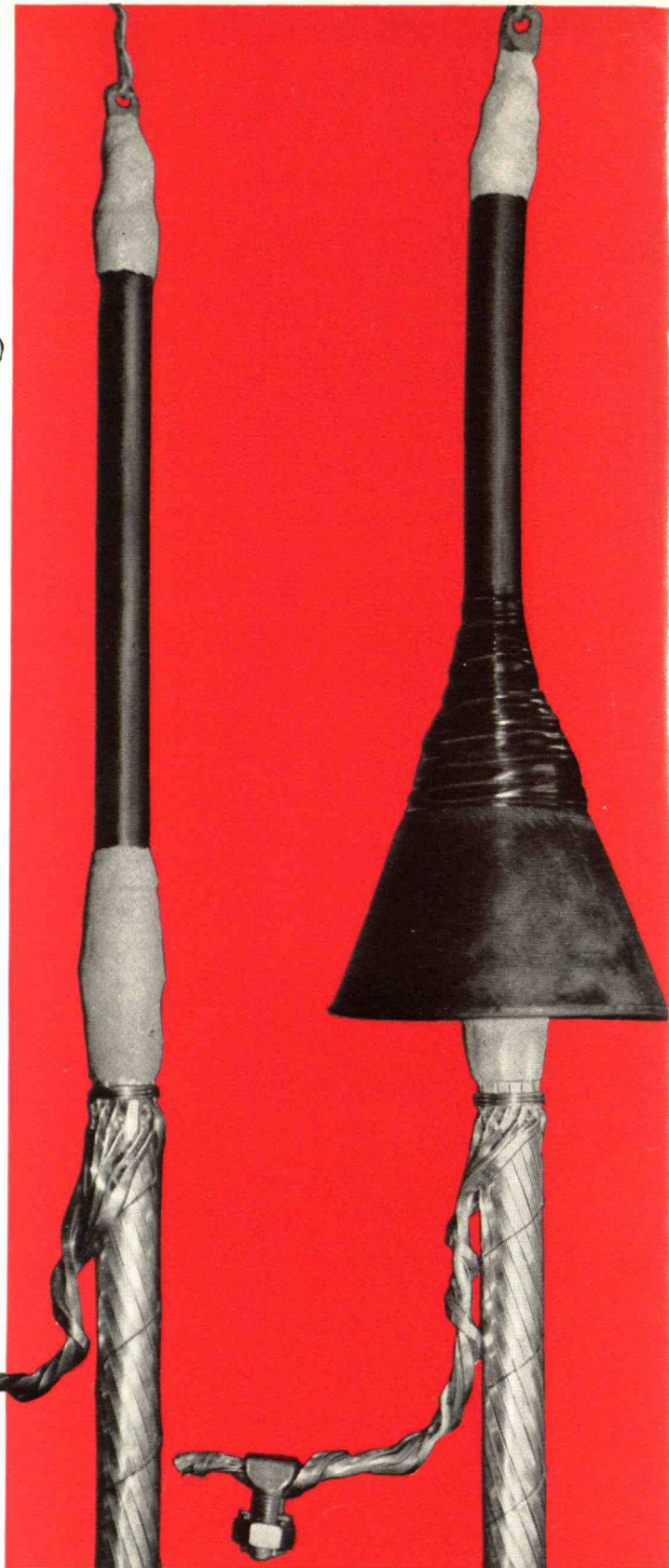
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AN AVCO-EVERETT RESEARCH REPORT

A SUPERCONDUCTOR IS NOT AN INFINITE CONDUCTOR

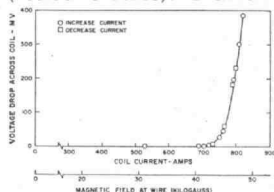
And the difference between the two is the reason why no reliable large superconducting magnets were built . . . until Avco-Everett Research Laboratory developed *stabilized* superconducting coils.

The discovery of superconductors capable of high current-carrying capacity and high magnetic field strength seemed to be a technological miracle. The way was apparently open for extremely powerful magnets that required virtually no power, once energized. These could help greatly in our effort to make practical Magnetohydrodynamic generators.

Then the miracle began to tarnish. The performance of superconducting coils was found to be unpredictable. The major problems with superconducting coils were: ☐ Coil performance was much poorer than that of short samples of superconducting wire. ☐ Many of the superior superconductors did not work at all in large coils. A prime example was heat-treated niobium-zirconium which, in short sample tests, exhibited five times the current-carrying capacity of niobium-zirconium that was not heat-treated. In coil windings, the heat-treated Nb-Zr gave only one-fiftieth (or less) than its short-sample performance. ☐ When a coil reached a certain (and unpredictable) value of its calculated current-carrying capacity, the magnetic field would collapse to zero.

Building a superconducting coil was an art, not a science; and an art that contained a good deal of black magic, at that.

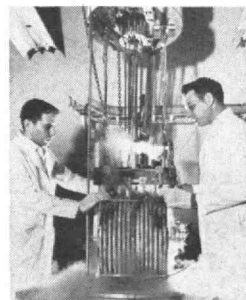
The solution was found by facing the fact that superconductors are not infinite conductors. Although the *resistance* of superconductors under direct current conditions is zero, the *current-carrying capacity* is finite. As the magnetic field increases in a superconducting magnet, the local currents induced reach their maximum value and sudden redistributions (flux jumps) occur. Flux jumps release heat which can make a small region of the superconducting wire go into its normal (resistive state). Growth of the normal regions in previous superconducting coils continued until the current was reduced.



Voltage current characteristic of an AVCO stabilized S.C. Coil. 710 amps were conducted thru nine .010" Nb-Zr wires without measurable voltage.

To test this theory in the most pointed way possible, Avco-Everett built a stabilized superconducting coil of *heat-treated* niobium-zirconium, which, as already noted above, did not perform at all in previous coils. ☐ Performance in the stabilized coil matched earlier short-sample tests precisely. ☐ This allows superconducting coils to be built with much less superconducting wire, thanks to the high current-carrying capacity of heat-treated Nb-Zr.

Superconductivity is still a miracle. But now some of the black magic has been taken out of the design and construction of large superconducting magnets. The stabilization technique has given us the confidence to begin building a coil designed for a total energy storage of seven megajoules. It is now possible to build reliable superconducting magnets of any size, for applications in industry, national defense, research and engineering.



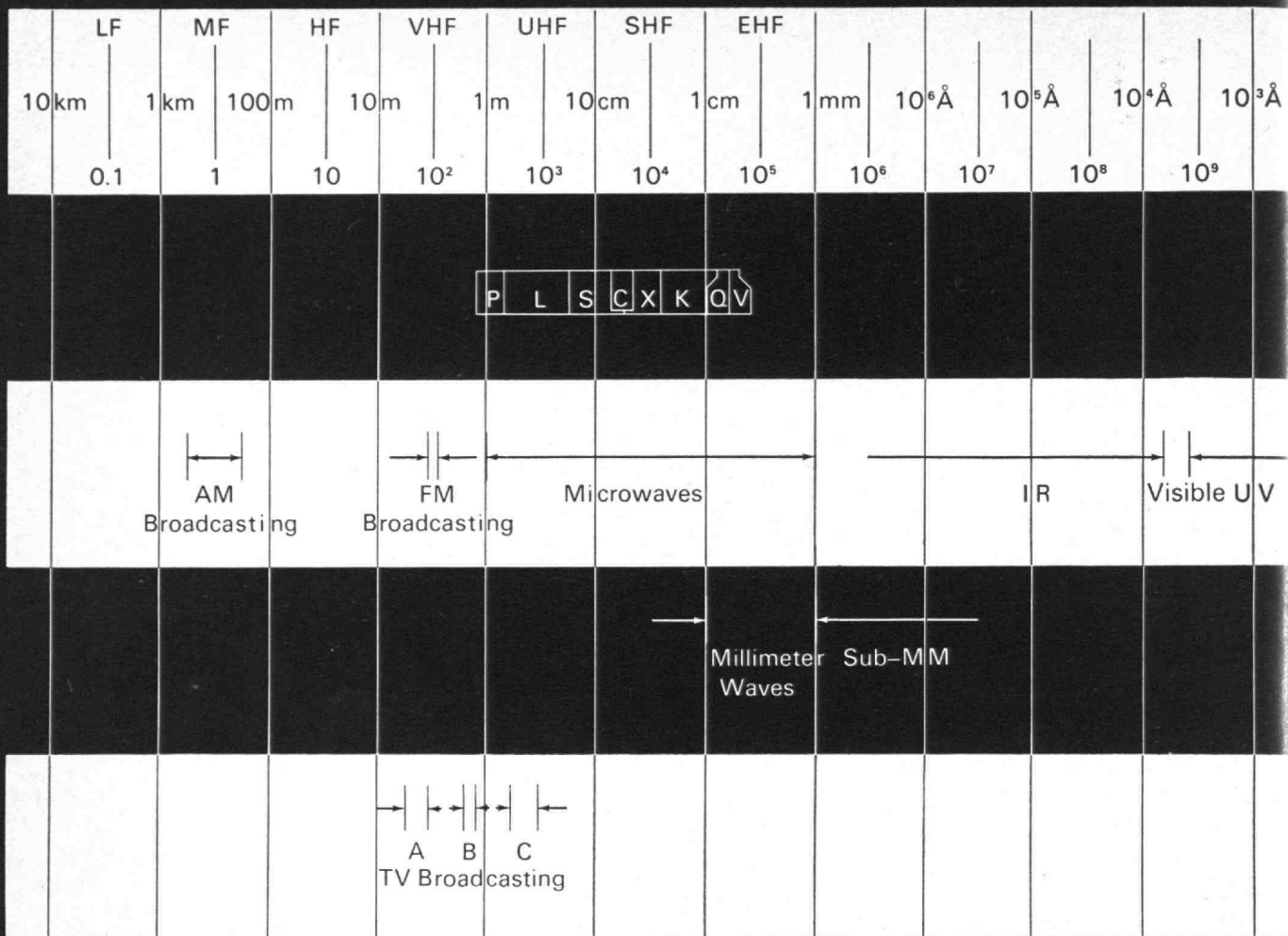
Avco-Everett's experimental stabilized superconducting coil. The magnet's operating characteristics are shown in the accompanying graph.

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This work was reported in Appl. Phys. Ltrs. Feb. '65 pg. 56 or Avco-Everett AMP #157.

Electromagnetic Spectrum



Lincoln Laboratory, a research center of the Massachusetts Institute of Technology, is engaged in research and development in advanced electronics, with emphasis on applications to national defense and space exploration. The program of research extends from fundamental investigations in selected areas, through technological development of devices and components, to the design and development of complex systems. All qualified applicants will receive consideration for employment without regard to race, creed, color or national origin. Lincoln Laboratory, Massachusetts Institute of Technology, Box 28, Lexington 73, Massachusetts.

Solid State Physics
Information Processing
Radio Physics and Astronomy
Radar Design
Control Systems
Space Surveillance Techniques
Re-entry Physics
Space Communications
A description of the Laboratory's work will be sent upon request.

Technology Review

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Officers of the Alumni Association of M.I.T. are: *Donald F. Carpenter*, '22, President; *Donald P. Severance*, '38, Executive Vice-president; *Samuel A. Groves*, '34, and *Philip H. Peters*, '37, Vice-presidents; *Fredrick G. Lehmann*, '51, Secretary; *Thomas P. Pitré*, Director for Clubs; *H. B. Kane*, '24, Director of the Alumni Fund; *Douglas F. G. Haven*, '52, and *Kenneth S. Brock*, '48, Associate Directors; and *T. Guy Spencer*, '56, Assistant Director.

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THE COVER shows a 1/37th-size model of a yacht in the Flow Visualization Tunnel of the U.S. Navy Experiment Station at the Philadelphia Navy Yard. M.I.T. studies of this sort are described in the article on page 17.



Future Space Flight Projects

A manned mission to Mars will fascinate mankind more than a landing on the moon, says Visiting Professor Abraham Hyatt (at left). What is needed? When? And the cost? Professor Hyatt, former director of plans and program evaluation for the National Aeronautics and Space Administration, took up these and other questions in this year's Minta Martin Lecture at M.I.T. It is summarized in this issue of The Review.

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Needed: More Ugly Americans

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Charles H. Savage, Jr., comments provocatively on the clash of cultures.

Vision and Value

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A glimpse into three new books edited by Professor Gyorgy Kepes.

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They suggest ways to house 1200 men on the banks of the Charles.

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Indicative autobiographical notes by Professor Walter A. Rosenblith.

Elusive Arctic Clouds Detected

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A report on research afar by optical maser scientists from the Institute.

Life in a Miniature Gas Bearing

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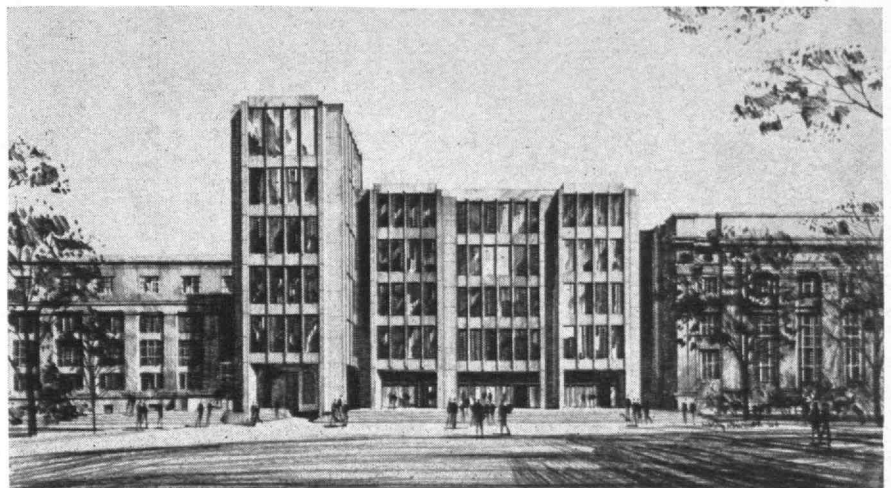
Paul Steranka, '60, describes the helium atoms' woes in laboratory tests.

The Trend of Affairs

24

New Books

30



For the M.I.T. Center for Advanced Engineering Education, this building is planned. See "10 Pioneering Engineers" in the Trend of Affairs on page 26.

Individuals Noteworthy



Professor of Biology

PAUL R. GROSS will come to M.I.T. from Brown University next July as professor of biology.

Dr. Gross received his A.B. and Ph.D. degrees from the University of Pennsylvania, has taught at New York University, and was at the University of Edinburgh as a senior postdoctoral fellow before joining the Brown faculty in 1962. He is a member of the corporation of the Marine Biological Laboratory at Woods Hole.

His recent research has been concerned with the molecular biology of differentiation and development in animal cells, particularly with the regulatory phenomena involved in the synthesis of proteins and nucleic acids. By using antibiotic inhibitors and radioisotope tracer techniques, he and his associates have been able to study the mechanisms of genetic control during early embryonic development. They have also been concerned with the biochemical processes by which the translation of genetic messages into protein molecules is regulated.

Professor of Physics

BENJAMIN LAX, '49, has been appointed professor of physics at M.I.T., and is relinquishing his responsibilities as Associate Director of Lincoln Laboratory, but will continue to direct the National Magnet Laboratory.

Professor Lax received his doctorate at the Institute after studying at Cooper Union and the Polytechnic Institute of Brooklyn. He has directed the Magnet Laboratory since its inception. He is an authority on solid state physics and received the Oliver E. Buckley Prize from the American Physical Society in 1960.

Sloan Research Grants

FIVE MEMBERS of the M.I.T. Faculty were among the 91 young scientists named recently to receive grants totaling nearly \$1,400,000 from the Alfred P. Sloan [95] Foundation. They were Associate Professors *Glenn A. Berchtold*, *James R. Munkres*, *William G. Strang*, '55, and Assistant Professors *Paul G. Federbush*, '55, and *James L. Kinsey*.

Faculty Honors

PROVOST Charles H. Townes was one of six Nobel prize winners recently given the Boston Medal for Distinguished Achievement, and was chosen as this year's recipient of the American Society of Tool and Manufacturing Engineers' Interprofessional Cooperation Award. . . . Professor *Michael B. Bever*, '42, received the Mathewson Gold Medal award from the Metallurgical Society division of the American Institute of Mining, Metallurgical and Petroleum Engineers, and Professor *Bertram E. Warren*, '23, gave this year's Institute of Metals Lecture. . . . Professors *Joseph H. Keenan*, '22, and *George N. Hatsopoulos*, '49, were asked to give a series of lectures in April at University College in London on "Thermodynamics—A Unifying Science."

Alumni Day Speakers

M.I.T. PROFESSORS *Patrick M. Hurley*, '40, *William S. von Arx*, '55, and *John V. Harrington*, '58, and *Thomas F. Malone*, '46, Director of Research for the Travelers Insurance Company will speak during a discussion of "The World We Live In" on June 14, Alumni Day at M.I.T. Dean *Jerome B. Wiesner* of the M.I.T. School of Science will moderate this special program for Alumni on the campus that day.

(Continued on page 6)



THE 17TH annual M.I.T. Fiesta in Mexico last March drew many noted Alumni together. From the left, above, are Miguel A. Santalo Cortina, '54, Mrs. Charles H. Townes, Provost Townes, and Don Federico Tamm.

At the right, Mr. and Mrs. Alvino Manzanilla Arce, '31, of the Mexico Club greet Mr. and Mrs. Donald F. Carpenter, '22. Richard L. Bolin, '50, was Fiesta chairman and James J. Rattray, '48, program chairman.





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Individuals Noteworthy

(Continued from page 4)

Faculty Activities

DEAN JEROME B. WIESNER of the M.I.T. School of Science was appointed to the Advisory Committee of Harvard University's Program on Technology and Science. . . . Professor Emeritus *C. Fayette Taylor* has been asked to lecture on internal combustion engines at the University of the Republic in Montevideo, Uruguay, next fall. . . . Professor *Morris Halle* helped prepare a Humanities Report prior to introduction of legislation to create a National Foundation for the Arts and Humanities.

Electronics Conferees

CO-CHAIRMAN of the M.I.T. Conference on Physical Electronics this spring were Assistant Professor *Robert E. Stickney* and *John F. Waymouth*, '50, of Sylvania Electric Products, Inc. The late Professor Wayne B. Nottingham started such annual conferences and the Research Laboratory of Electronics sponsored this 25th one. *David B. Langmuir*, '35, was one of the session chairmen.

Alumni Committees

FRANCIS M. MEAD, '29, will be chairman of the 1965 Alumni officers' Conference at M.I.T. next September 10 and 11. Gregory Smith, '30, will be deputy chairman. Their aides will include Donald A. Hurter, '46, Leo M. Beckwith, '35, Kemon P. Taschioglou, '49, William H. McTigue, Jr., '54, T. Guy Spencer, Jr., '56, and Frederick G. Lehmann, '51.

Robert W. Forster, '35, is the chairman of the committee planning the Alumni Day luncheon on June 14, and his committee includes William H. Carlisle, '28, Edward B. Hubbard, '31, Franklin P. Parker, '36, John L. Danforth, '40, Stanley W. Warshaw, '44, George H. R. McQueen, '49, and Anthony R. Romano, '54.

Honors to Alumni

RECIPIENTS of recent awards and similar distinctions have included:

Frank S. Wyle, '41, an Award for an Arithmetic Processor by the Instrument Society of America Journal . . . *Perry L. McCarty*, '57, the Huber Research Prize by the American Society of Civil Engineers.

Touring Fellows

FOUR DOZEN Sloan Fellows went to Washington from M.I.T. in April for conferences with Justice William O. Douglas, Secretary of Commerce John T. Connor, Secretary of Labor W. Willard Wirtz, Secretary of Agriculture Orville S. Freeman, Senator Hugh Scott, and other national leaders.

Preparatory to a European trip in May, they were also scheduled to see Ambassador Heinrich Knapstein of Germany, Ambassador Herve Alphand of France, Ambassador Veljko Micunovic of Yugoslavia, and Ambassador Hubert de Besche of Sweden.

Peter P. Gil, Assistant Professor J. Daniel Nyhart, and Priscilla A. Karb accompanied them to Washington.

(Concluded on page 8)

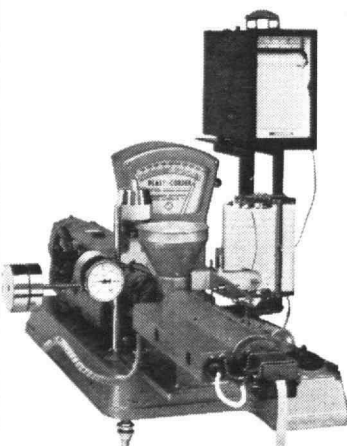
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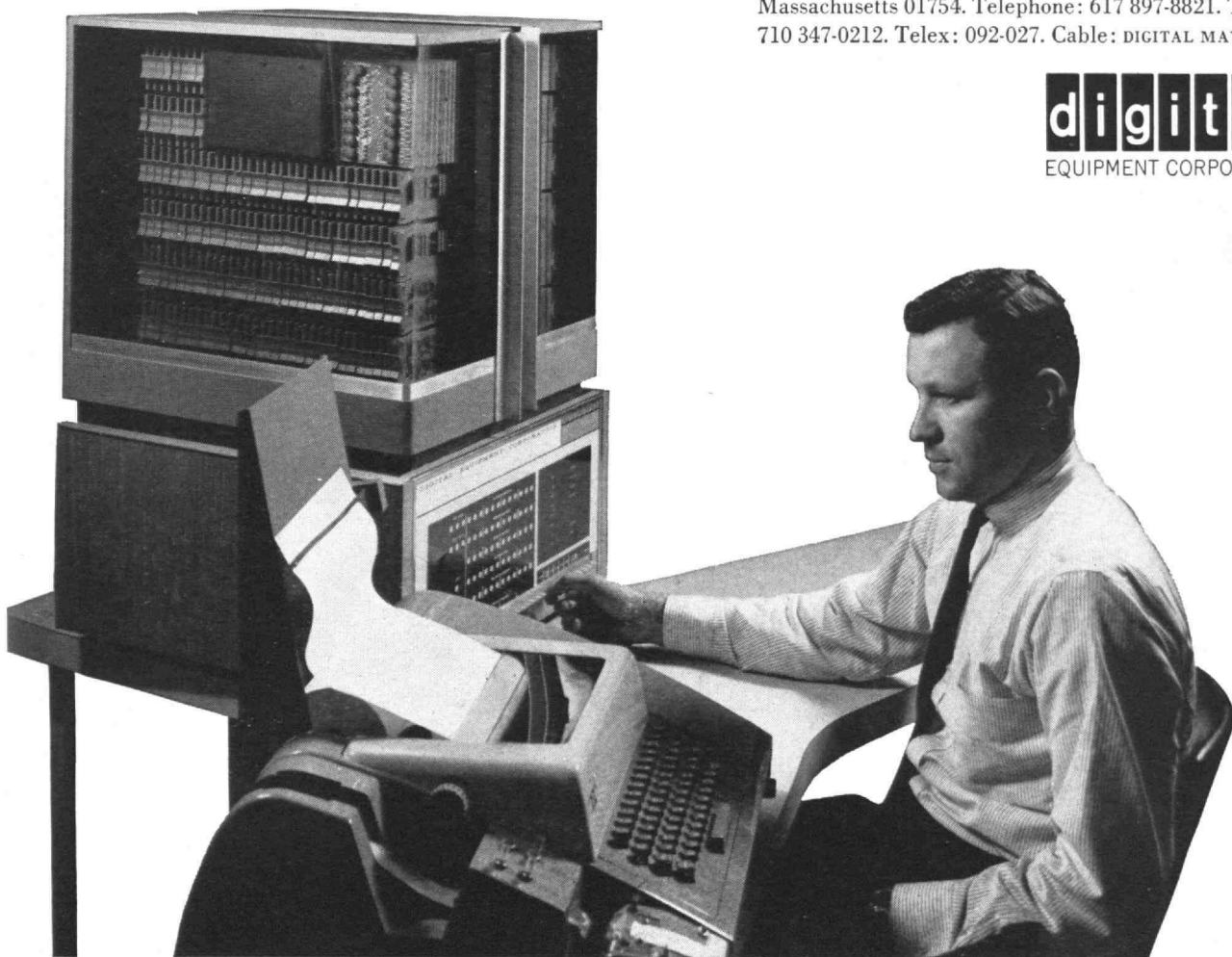
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Individuals Noteworthy

(Concluded from page 6)

New Posts

NAMED in the news of promotions, elections, and appointments were:

Robert S. Mulliken, '17, as Distinguished Research Professor of Chemical Physics, Institute of Molecular Biophysics, Florida State University . . . *Foster P. Doane, Jr.*, '20, as Consultant, Huyck Corporation . . . *John W. Barriger, 3d*, '21, as Chairman and Chief Executive Officer, Missouri-Kansas-Texas Railroad;

C. Stark Draper, '26, as Technical Consultant, National Aeronautics and Space Administration . . . *David A. Shepard*, '26, as a Director, Merck & Co., Inc. . . . *Sidney L. Kaye*, '30, as a Trustee, Brookline (Mass.) Public Library;

Edward N. Rosenquist, '32, and *David A. Johnson*, '52, respectively, as Representatives, Dayton and Syracuse Sections; *Eugene E. Magat*, '43, and *Rudolph A. Carboni*, '53, as Representatives, Delaware Section, National Council, American Chemical Society;

George J. Bair, '36, as President-elect, the American Ceramic Society . . . *Thacher H. Fisk*, '39, as Vice-president, Kendall . . . *Thomas J. Reading*, '39, as a Director, American Concrete Institute;

William A. Bolhofer, '42, as Senior Research Fellow, Department of Medicinal Chemistry, Fundamental Research Area, Merck Sharp & Dohme Research Laboratories . . . *Benjamin Parran, 3d*, '43, Director, Systems Development Division, Research and Engineering, Xerox Corporation . . . *William J. Vallette*, '43, as a Member, National Engineering Manpower Commission;

W. Buell Evans, '44, as Associate Professor, Emory University . . . *Allan L. Bralove*, '46, as a Director, Documentation Incorporated . . . *Raymond F. Rogers*, '48, as Vice-president, The Polymer Corporation;

Robert H. Shoulberg, '48, as Head, Plastics Applications Laboratory, Rohm & Haas Company . . . *Paul F. Eberhard*, '50, as Division Substation Engineer, Bergen Division, Public Service Electric and Gas Company . . . *William D. Phillips*, '51, as Associate Director—Basic Sciences, Cen-

tral Research Department, E. I. du Pont de Nemours and Company;

William C. Reisener, Jr., '51, as Head, Control Systems Laboratory, The Franklin Institute Research Laboratories . . . *Nathan Levine*, '52, as Head, Re-Entry Systems Department, Bell Telephone Laboratories . . . *Seymour L. Blum*, '54, as Director, Ceramics Division, IIT Research Institute of Chicago;

Charles H. Goodman, '54, as Vice-president, Material Service, and as President, Darlington Brick . . . *Frederic D. Randall*, '54, as Administrative Assistant to Vice-president—Market Development, Eli Lilly and Company . . . *James M. Chorak*, '57, as Director of Materiel, Ground Systems Group, Hughes Aircraft Company;

Gregory L. Boshart, '60, as Technical Sales Representative for Chemicals, Enjay Chemical Company . . . *Rollyn G. Graham*, '60, as Head Performance Methods Section, Technology Division, Aerospace Corporation . . . *Richard E. Kaplan*, '60, as Assistant Professor, Graduate Department of Aerospace Engineering, University of Southern California.

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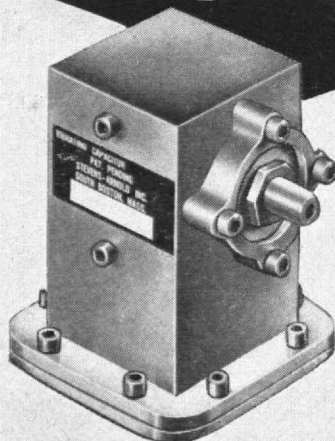
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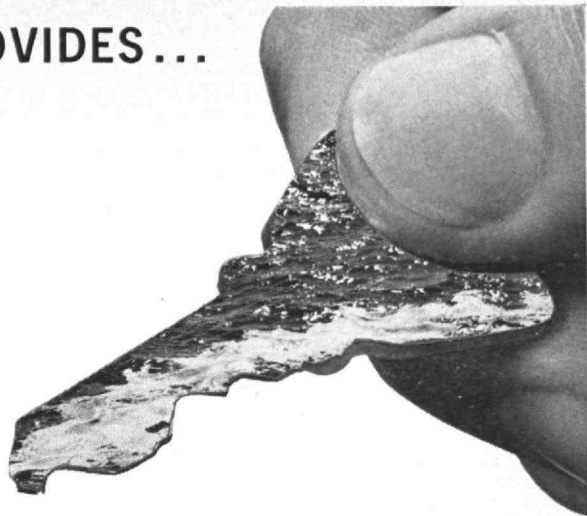
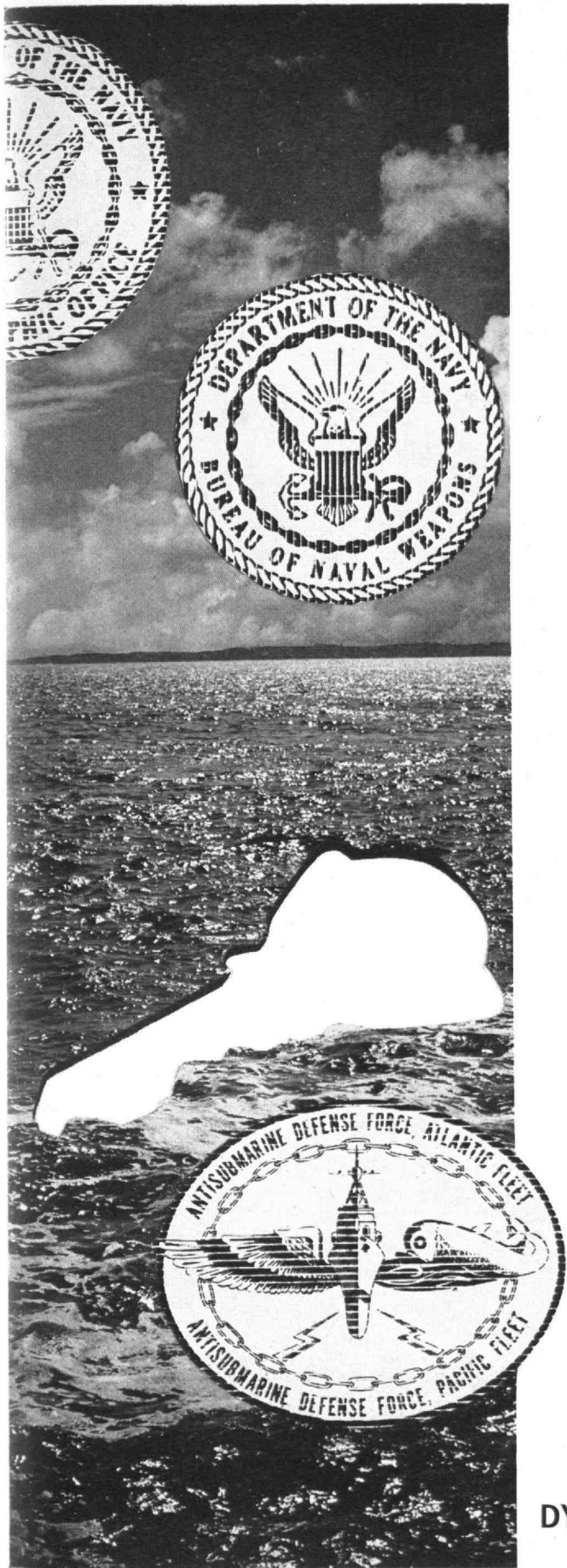
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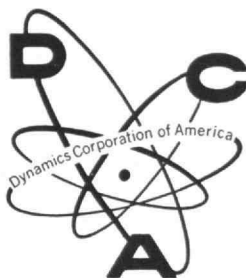
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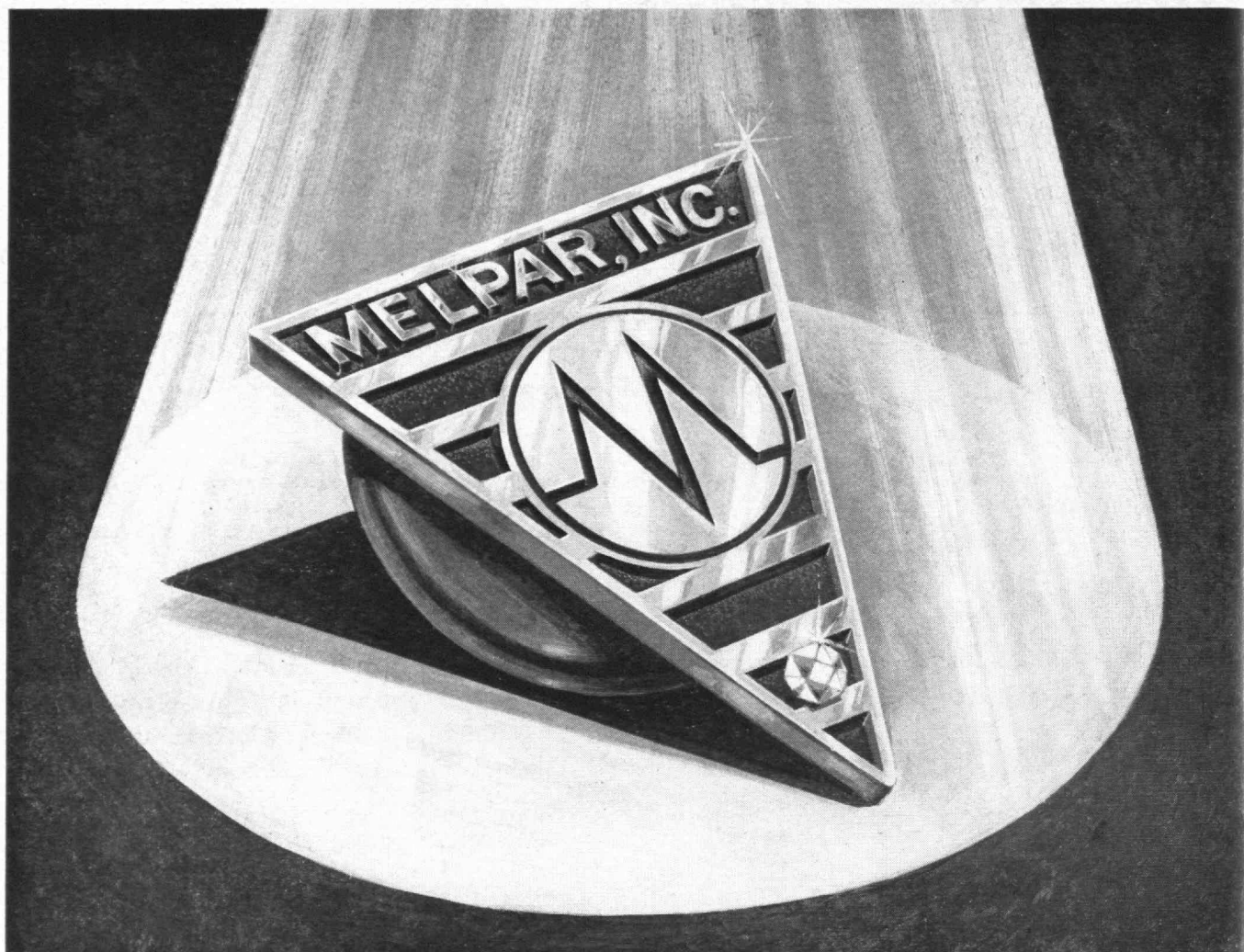
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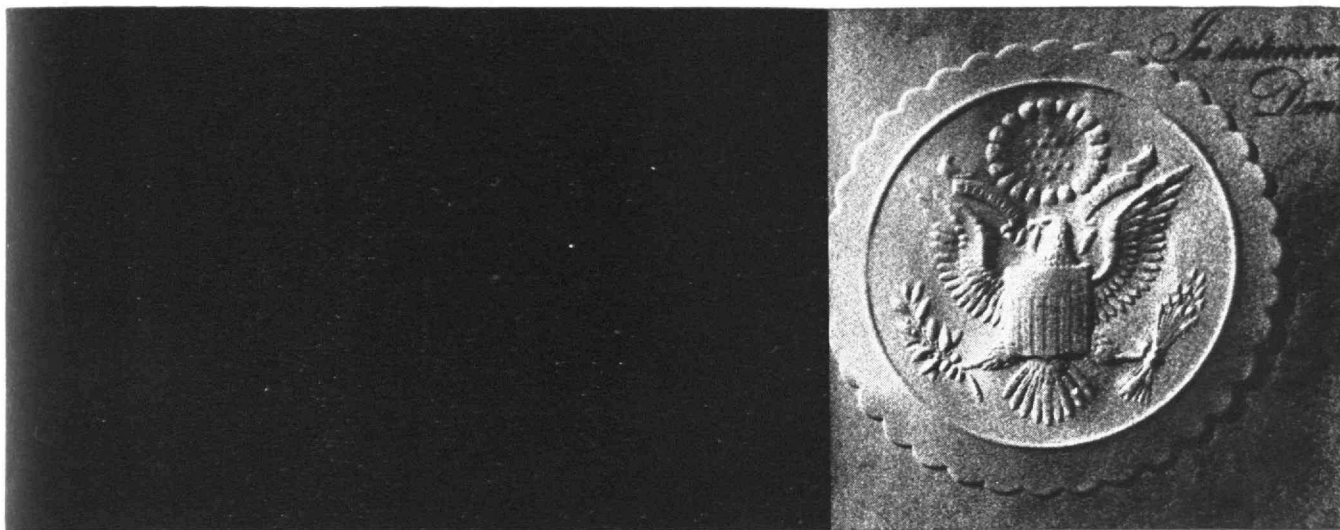
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Future Space Flight Projects

A condensation of the Minta Martin Lecture delivered this year at M.I.T. and other universities

By Abraham Hyatt

Jerome C. Hunsaker Visiting Professor of Aeronautical Engineering

WHEN THE PRESIDENT of the United States, in 1955, announced that the U.S. would attempt to launch an earth satellite during the International Geophysical Year, the principal motivation was essentially scientific. The proponents of the project did foresee a prestige value and used that as one of the arguments in favor of an earth satellite. Their arguments were only partially convincing to the then government leaders.

The momentous achievement of orbiting an earth satellite by Russia in 1957 startled the entire world. Not only was the average person in all countries awed, but a majority of the educated public, scientific, and engineering groups were enormously impressed. The general public was overcome by the intrusion of man, through his works, into a region heretofore reserved for the supernatural and mystical. The educated and technical communities were amazed by the scientific and engineering achievement.

Considering its vastness and mystery, the look into space so far can be likened to a peep through a minute window. Now that the curtain has been pulled aside it will never be drawn again. Reaction to Russian achievements was the principal motivating force in the past. Henceforth, the challenge to explore, to discover, to unravel the mysteries of space, and to satisfy the curiosities of the probing minds of men will become the prime movers for space exploration.

From the very beginning of the space program, some parts of it have followed carefully developed plans. Objectives were limited but clearly defined and fitted into a larger over-all pattern. Other, very substantial portions were random minute attacks on vast regions of space without well-defined or generally accepted goals. The past period may be looked upon as an early phase of probing the unknown to gain enough knowledge with which a more comprehensive long-term set of objectives can be formulated.

The bulk of the scientific measurements and experiments in space during the past seven years has been in

near-Earth space—principally the experiments related to the upper atmosphere, ionosphere, radiation belt regions, and observations of the Sun. Fewer than 10 space flights have made measurements in space beyond the region of the magnetosphere, which extends to some 50,000 miles beyond the Earth's surface. Only three space flights have furnished data beyond Moon distances.



The great lack of scientific knowledge of near Earth space, the Sun, and solar and cosmic radiation has now been made clear. Since the Sun is believed to be the controlling agent of solar space environment, it is reasonable to assert that a period of observation and measurements *in situ* of two solar cycles, or roughly 25 years, may be necessary to develop a fairly exact model of geophysical phenomena about the Earth with a high degree of predictability and obtain a comprehensive understanding of the solar space environment. The effects of interaction with cosmic radiation will also be better known at the end of this period.

No inference should be made that the scientific experiments or measurements *in situ* in the solar system will cease after two solar cycles. The 11-year solar cycle is best known, but there is evidence that other cycles exist. Monitoring in the Solar System may have to continue indefinitely.

The characteristics and properties of the planets are also of very great interest to science in the search for understanding the development of the Solar System. Of even greater importance is the general interest in the possibility of discovering some forms of plant or animal life on the planets. Manned voyages to the planet Mars and other planets will certainly take place at some future time. Before they can be undertaken with confidence, much more needs to be known about the physical phenomena of near Martian space, its atmosphere

and surface characteristics. For these purposes, unmanned exploration by automatic spacecraft is essential.

In addition to the ongoing near Earth geophysical experiments, eight future deep space science projects are postulated. They are:

1. A spacecraft to explore the surfaces of Mars and Venus (Voyager).
2. A Solar Probe (SoP) to 0.3 AU.
3. A Solar Orbiting Observatory (SOO) at 0.3 AU.
4. A Lunar Orbiting Observatory (LOO).
5. A Probe Out of the Plane of the Ecliptic (PoPE).
6. A Probe to 5 AU.
7. A Solar Orbiting Observatory Out of the Plane of the Ecliptic (SOOOPE).
8. A Solar Orbiting Observatory at 5 AU (SOO-5 AU).

The future of the Manned Space Flight Program is now being debated at all levels of government. Industry and scientific and engineering organizations are also producing great quantities of reports, papers, and discussions of the same topic.

Many manned space flight projects can be envisioned. For the next quarter century they will most likely fall into one or more of the following categories:

1. Manned Orbiting Laboratory.
2. Manned Military Operations in Space.
3. Lunar Exploration—post-Apollo.
4. Manned Expedition to Mars.

Of these, the Manned Orbiting Laboratory is by far the most important and logical next manned flight project.

A laboratory which can accommodate all the most important experiments is estimated to weigh about 30,000 pounds. The total number of crew required is estimated between six and 10. Provision for the simulation of gravity forces are essential in that they constitute one

of the possible prime experiments related to man's survivability in space. The laboratory can be so designed that it can be reprovisioned and crews rotated as necessary. Stay time in orbit can be extended to a year or more with reprovisioning. If the need arises the laboratory could be abandoned and reinhabited at some later time. It can be launched into orbit by the next to the largest launch vehicle now under development, the Saturn 1B. The Apollo command module can be adapted for crew rotation and resupply. It and the Saturn 1B are major elements developed and paid for by the Lunar program.

To go all the way to a very large laboratory, housing as many as 25 people, will result in assuming disproportionate risks in cost and timing. There is simply not enough knowledge, and the course that such a large laboratory will take is not sufficiently foreseeable at this time to warrant its initiation. The intermediate step, provided it is not a "makeshift" step, should prove superior in the long run.

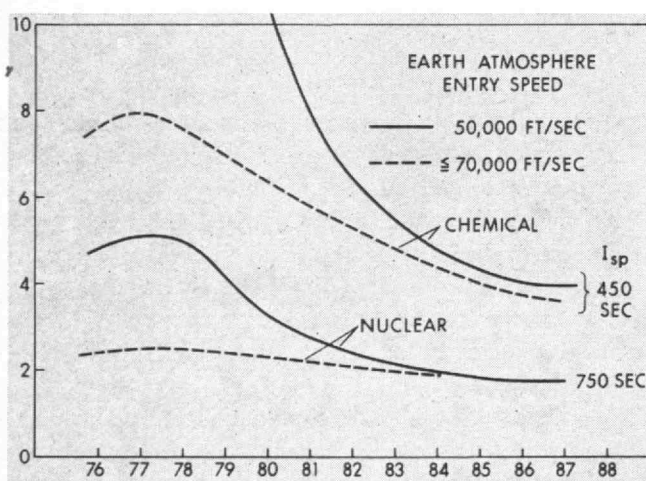
Following the MOL are projects of Manned Military Operations. In time military operations involving men in space are believed to be inevitable; however, this step should come only after some firm results are obtained from military experiments in manned spaceflight.

Many persons believe that following successful completion of a manned lunar landing there will follow an expanded program of lunar exploration. NASA is investigating several avenues of lunar exploration. One suggestion is to modify present Apollo subsystems in such a manner that they can be used to extend the stay time of astronauts on the moon from the present period of two days to several weeks. At the other extreme, studies are in progress which would lead to the establishment of a permanent manned station on the moon. The purpose would be to explore the surface and subsurface characteristics of the moon and to use the station as a scientific observatory.

The conclusion is that a post-Apollo manned lunar exploration program and a permanent lunar station do not have the same importance, now, to the future of space exploration as a manned orbiting laboratory. When the people on earth embark upon a program for a manned expedition to the planet Mars, a permanent lunar base may be a desirable prerequisite.

☆ ☆ ☆

The manned space flight project which will fascinate all mankind to even a greater extent than the moon landing is a manned expedition to the Planet Mars. As a challenge to many disciplines in science, engineering, manufacturing, technology, and industrial development, it will surpass any other project in man's history. The moon landing project will be dwarfed in over-all magnitude and complexity, and in new developments and necessary resources. The ability of the human mind to encompass and manage this project efficiently will be taxed to the limit. The project, to be successful, cannot be thought of as of main interest to scientists, or engi-



Initial weight in Earth Orbit for a Manned Mars Mission (450-day round trip, 20-day stop over) can be read in scale at left in millions of pounds according to launch year. Permitting the spacecraft returning from Mars to enter the Earth's atmosphere at some 70,000 ft/sec. instead of around 50,000 ft/sec. would permit a reduction in initial weight of about 50 per cent in the 1970's.

Areas Requiring Technological Advances for Manned Mars Expedition (Partial List)

Propulsion

- Large Chemical Rocket Engine and Launch Vehicle
- Nuclear Rockets
- *Propellant Storage
- *Nuclear Electric Rocket

Life Support

- *Effects of Weightlessness on Man for 1-3 Years
- *Closed Ecological Systems to Operate 1-3 Years

Contamination

- Mars, Earth

Orbital Operations

- *Assembly and Checkout of Launch Vehicles

Auxiliary Power

- *Lifetime 1-3 Years
- Decreased Weight—Power Ratio

Environmental Protection

- Radiation Belts
- Solar Flares
- Meteoroids
- *Vacuum of Space
- High Re-entry Velocity

Planetary Atmosphere

- Atmospheric Braking
- Life Support Systems on the Planet
- Environmental Protection Systems (Temperatures, Toxic Gases? Other)

System Reliability

- *Required for 1-3 Years

**Experiments can be conducted in a Manned Orbiting Laboratory*

neers, or NASA, or DOD, but must have the interest and support of a majority of the people of the country.

Several extensive, but still preliminary, analytical studies of manned voyages to Mars have been completed. Large numbers of trajectories are possible. Short round trips between Earth and Mars can be postulated but the energy requirements are so large that for the present their consideration is absolutely impractical. If it is desired to use a minimum amount of impulsive energy, then a round trip would last about 1,000 days, or nearly three years. About one year of this period must be spent on Mars waiting for the Earth and Mars to move into favorable positions for the return trip. The best compromise at this time is to select a total trip time of about 500 days. Between 200 and 250 days is used in transferring in each direction with about 40 days' stay time at the planet.

An assessment of several of the studies indicates that a Manned Mars Expedition with the following characteristics is reasonable from a purely analytical viewpoint:

Time (favorable opposition period)	1986-1988
Number of Crew	8
Duration of Mission	≈ 500 days
Total Weight Required in Earth Orbit at Start of Mission	≈ 2,000,000 lbs.
Propulsion—Earth Orbit Departure	nuclear
—Retro into Mars Orbit	nuclear
—Mars Orbit Departure	nuclear
—All Others	chemical
Manned Mars Excursion Model (MEM)	yes
Atmosphere Braking of MEM	yes
Provision for Artificial Gravity	yes
Earth Reentry Speed	≈ 45,000 ft/sec.

The amount of weight in Earth Orbit at the start of a mission is considered a very basic figure of merit. Ultimately it will reflect the difficulty, complexity, and cost

of the mission. Many factors affect it adversely or beneficially. The figure on page 14 shows, for example, how the initial weight in Earth Orbit varies with the time of the mission, the kind of propulsion used, and the influence of Earth reentry speeds. The all-chemical propulsion may require from two to many times as much weight in orbit as the combination nuclear and chemical propulsion. Also, the chemical propulsion system requires more than three times as much weight in orbit if launched during 1978 as in the mid-'80's.

Most of the studies of a mission to Mars have employed direct transfer trajectories. More recently a number of authors have proposed "Venus Swingby" trajectories. Several significant advantages are cited which could ultimately be converted to lower initial weight in Earth Orbit. Generally these advantages are at the expense of somewhat longer trip times and occasionally trajectories involving closer passage to the Sun than the orbit of Venus.

Many other factors too numerous to include here affect the initial-weight-in-orbit required and the feasibility of a manned mission to Mars in general. The table on this page is only a partial list of some of the more apparent areas of technology that will have to be advanced to new plateaus of understanding. One of the principal unknown elements is man himself. Can he survive the space environment and particularly weightlessness for a period close to two years? The development of nuclear rocket engines several times as large as the present NERVA engine will be necessary. One of the most subtle and critical engineering problems to be faced by designers of interplanetary spacecraft is the requirement that all vital apparatus function over a period of a year and a half to two years. Very little, if any, maintenance can be performed during the mission. Some vital parts, for example the propulsion system used in departing the Mars orbit, will have to be exposed to the space environment for a period of about a year

after it is launched into space and must then operate successfully in order that the astronauts return to Earth.

Placing two million pounds into Earth Orbit will be a monumental task. This must be done in a relatively short period, possibly three months or less. The Apollo program in comparison requires a little over 200,000 pounds in Earth Orbit to do the lunar landing missions. From 1957 through 1964, the U.S. and Russia, combined, launched some 300 payloads with a total weight of less than one million pounds in orbit.

The problems are difficult and manifold, but given time and the necessary resources they can be solved. Laying out a plan for such an ambitious project for which there is no applicable experience is a difficult and uncertain task. Without some insight into the timing, the discussion of other aspects of a Mars mission loses much of its meaning.

Using the best available data on as similar experience as we have had, an estimate was made of the development time required for a number of major subsystems. When these were scheduled in accordance with longest

lead times and normal schedule overlapping between related parts, an estimate resulted of the total time required. The conclusion is that as much as 12 to 15 years will be needed to prepare for a manned flight to Mars.

The next most favorable opposition is 1971, only six years away. Regardless of the amount of resources that might be made available, a manned expedition in this time period is impossible. After 1971 a favorable opposition occurs in 1986-1988. An extrapolation of sunspot cycles also indicates that 1985-1986 may be a period of low activity. Allowing 15 years for research and development and assuming a 1986 first launching results in earliest initiation of Manned Mars Expedition as 1970.

A treatise on future space projects without the inclusion of cost estimates would be lacking in realism. The purely technical feasibility of a project and some of the reasons for or against doing it can be analyzed without being affected by cost. When the subjects of timing of future events and government policy decisions relating to space projects are involved, then cost of a project is among the most important planning factors.

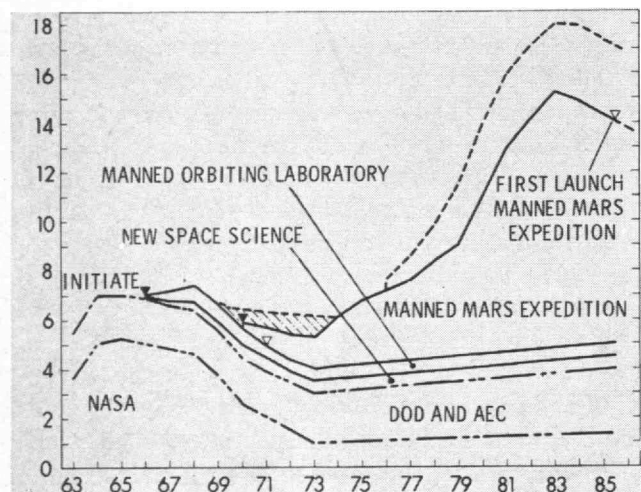
Important as the subject is, cost predictions of future space projects have been notoriously inaccurate. Actual costs of most space projects have ranged anywhere from two to more than five times the original estimates. Very elegant mathematical costing models have been tried but the accuracy has not been improved significantly. The cost of a Manned Mars Expedition (MME), based on a very simple model, is estimated at \$75.2 billion spread over a 15-year period. The earliest initiation of any development that would be directly related to an MME is not expected before 1970.

Over-all annual cost estimates of the projected National Space Program, for the next two decades, are shown at the left. These costs are compared with a projected Gross National Product in the lower figure.

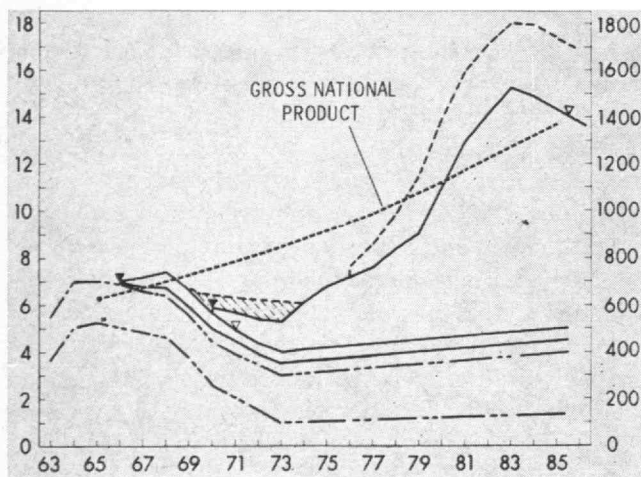
The magnitude and urgency of the present space program are almost entirely a consequence of the broad conflict for superiority between the United States and Russia. The present and foreseeable relationship between these two great military powers is one of mistrust and alert watchfulness. It is unlikely therefore that either will abandon the space science exploration or the further development of Manned Space Flight. (The potentially third great power, China, looming in the background cannot be overlooked.)

The cost of the National Space Program can be rationalized as a national investment in the future. Some evidence exists that the space program may eventually pay for itself many times over through creation of new products, new processes, new industries, and new knowledge.

As history measures time, the people of highly industrialized nations will soon have a standard of living which leaves little to be desired. Under these circumstances the "body" will be fully nurtured but the mind may stagnate and famish. Space exploration could very well offer the unifying and inspirational outlet that is vital to probing minds and a virile society.



Cost of all programs by fiscal year is shown above. Scale at left is billions of dollars. Below, this summary is compared to Gross National Product—billions of dollars in scale at right. Scale at left is 1/100th of scale at right, so one per cent of GNP can be read directly for any year on the left scale. Between 1969 and 1978, for example, space programs would cost less than 1 per cent of GNP.



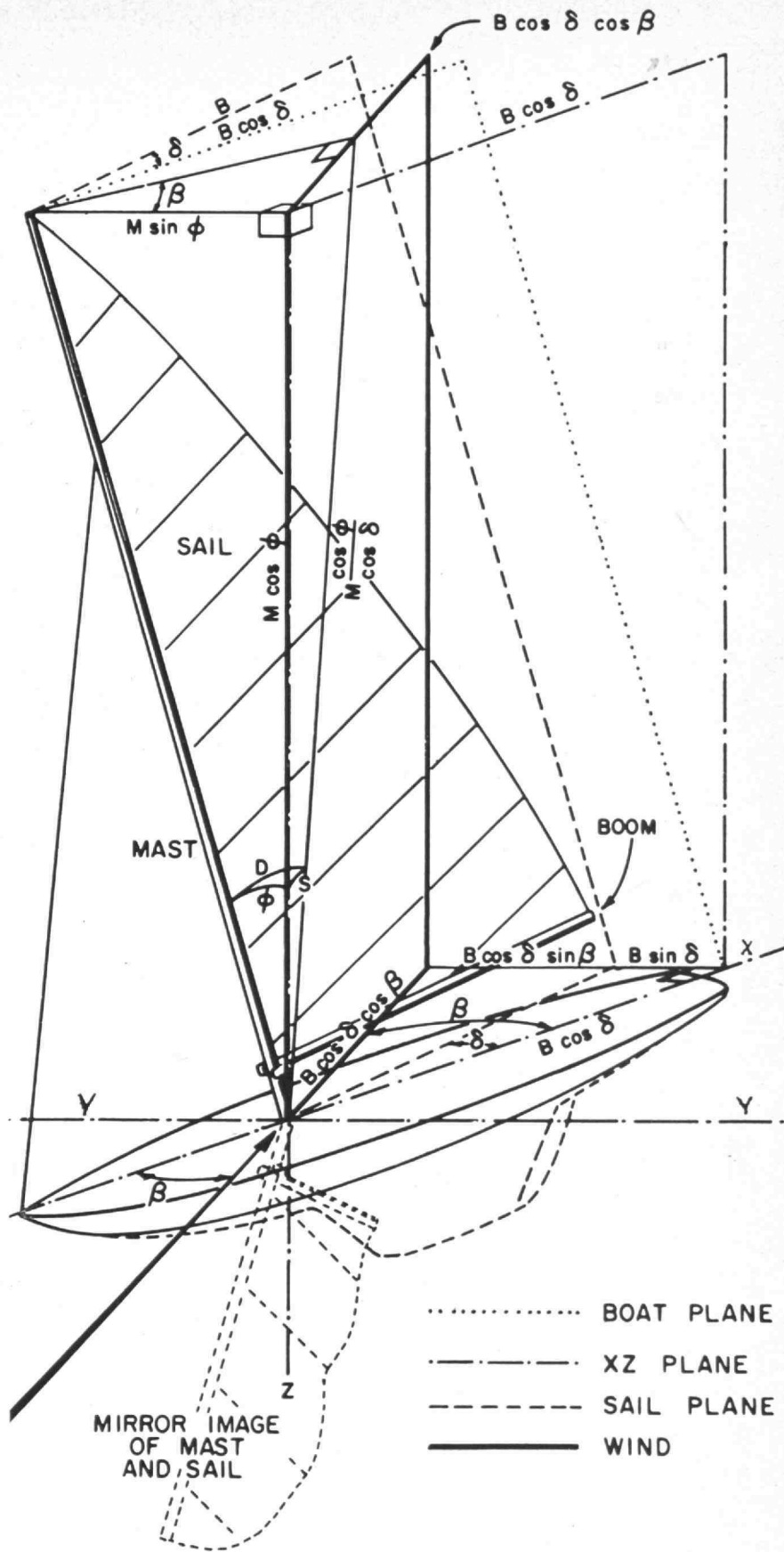
Boats Sail Faster on A Computer

Models in a wind tunnel yield data for the naval architects

SAILBOAT RACES are being held at M.I.T. these days with yachts that may never be built, in winds that make no sound, and on a sea that isn't wet. The races of many miles last only a fraction of a second. That's because the boats and winds are mathematical calculations and the ocean is a computer. The sailors are engineers in the Department of Naval Architecture and Marine Engineering who are using new methods to improve the design of racing yachts. Besides the computer studies, they have started wind-tunnel tests to determine the aerodynamic properties of sails.

Rowing boat hulls have been evolving for the last 2,000 years on the Nile River without the help of naval architecture, and the complex development of modern sailboats in part still follows the same process of trial and error, according to Instructor Halsey C. Herreshoff, '60, and Associate Professor Justin E. Kerwin, '53. Their objective is to understand better what combination of hull shape and set of sails works best and why.

Flow around a complicated shape like that of a yacht hull cannot be solved theoretically, so sailboat models up to five feet long are tested in the M.I.T. Ship Model Towing Tank to determine the drag and side force resulting from each particular combination of speed, displacement, heel, pitch, and yaw. Once the influence of the various hydrodynamic factors has been measured, the investigators make predictions of the forces for a full-size yacht of the same hull shape.

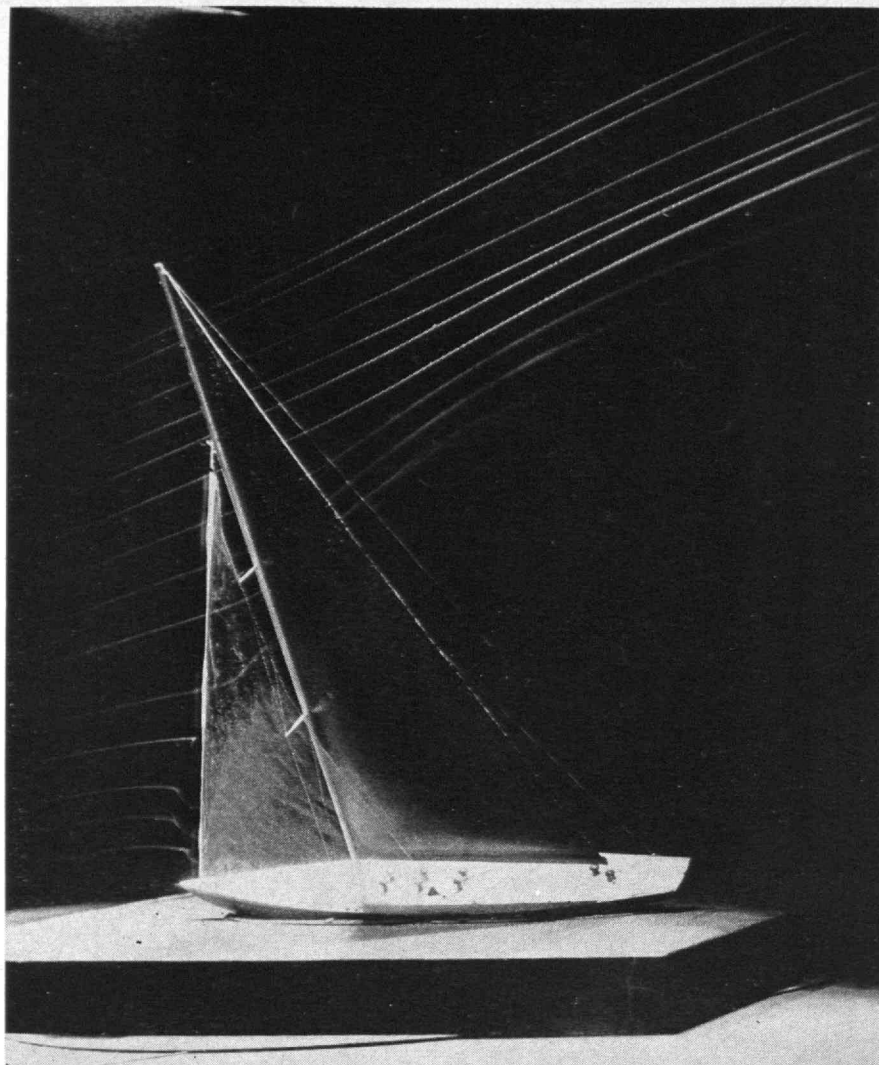


This diagram shows the complex geometry of a sailing yacht. The dotted line outlines the boat plane; the dashed line is the sail plane, and the solid, heavy line indicates the wind. The mirror image of the mast and sail, shown in light dashed lines, is included to illustrate equilibrium between the forces above and below the surface of the water.

This last step can be done in about one minute after a test run by means of a time-sharing console that links the experimenters to an IBM 7094 computer. From the combination of all test data they derive mathematical equations from which they can find the forces acting on the hull at any speed and attitude. Some yachtsmen may be interested to know that for many hulls a combination of small yaw and moderate heel causes less drag than if the hull were running upright.

The study of sails is now the most fertile field of yacht research, the experimenters say, and they are conducting the first extensive wind-tunnel tests of sails. Five-foot-high sails or complete rigs are arranged in the large Wright Brothers Wind Tunnel and forces of lift and drag are measured just as they would be in aircraft research. The models are of Fiberglass-reinforced plastic so that their shape remains constant. In addition, Research Assistant Jerome H. Milgram, '61, has written a computer program that provides a rational determination of sail shape and the means for cutting panels of sails, which otherwise must still be made literally by cut-and-try methods.

At the computer console, the experimenters can call up any combination of hulls and sail rigs and take them sailing—with performance equations—to see how the boats would work. They may choose any number of hypothetical race courses



A 1/37th size model of a 12-meter yacht sails to windward in a tunnel test. The jib is made of mylar. Streamlines flowing downward on lee side, upward on windward side, show the aerodynamic lift of the sail.



Yaw angle is measured on a full-size yacht. A. Sidney DeWolf Herreshoff, '11, is at helm. George Isdale, aft, is sighting through a telescopic pelorus on a smoke bomb in the wake of the vessel, the 47-foot racing yawl "Robin." This recent run off the Florida coast was one in a series of tests under sail.

in terms of wind velocity, the sailing direction on each leg of the course, and the length of each leg in miles. For a reaching leg, they can find the best solution for apparent wind angle, boat speed, and elapsed time between buoys. For windward or running courses, the computer program is designed to determine the best sailing angle and elapsed time. In one recent run, the sailors lowered the center of gravity of a boat and found that it was 11 seconds per mile faster in a 25-knot wind but only two seconds faster in a 15-knot wind. Then they raised the center of gravity, increased the sail area, and produced a yacht that heeled more but was faster "even in the heaviest air." But the computer won't eliminate the racing of real boats on the real sea, they say. "We can't duplicate the judgment, seamanship, and tactics of a great helmsman."

Needed: More Ugly Americans

Enchanting old cultures have effective ways of resisting efforts to alleviate people's misery

By Charles H. Savage, Jr.

THE UNDERDEVELOPED WORLD may be suffering today from a shortage of those "Ugly Americans" whom Burdick and Lederer labeled with a novel. The Ugly American is a work-oriented, socially clumsy character who thoughtlessly rips into the delicate fabric of a lovable old culture, yet he may be one of our more serviceable types. The up-ending of lovable old cultures may be a prerequisite of technological development. If so, our expanding effort in the underdeveloped world requires that we revive a fading type that got us early and important mileage.

Certainly old cultures are lovely to savor, to photograph, and to lecture neighborhood groups about because they represent triumphs of a human spirit that had fewer resources at hand. But both they and the special interests that seek to perpetuate them also represent pesthouses of infant mortality, implacable barriers to young minds seeking knowledge, and young imaginations craving the free inquiry that gives life its special purpose. They are a mother's silent sorrow, a father's final humiliation. By their failure to incorporate the new solutions that science is turning up, they have forfeited their right to prevail. Between them and the new technologies conflict is inevitable.

This should not surprise us. What may come as a surprise is that the outcome is not ordained. It is not simply a matter of patiently waiting until the new technologies win their inevitable victory. The old cultures are resilient. They have demonstrated unexpected capacities to marshal their forces. At times they have exerted discipline over and immobilized even those nationals with foreign technical education. They have generated support from important bodies of opinion within the technologically oriented societies. Technological advance proceeds slowly, touching only small segments of the world's population, and in many ways the struggle is uneven—with the advantage going to the old cultures.

The particular target of the forces contesting innovation is the young professionally trained native with international inclinations. He is the one in direct contact with the foreign forces of innovation. The technical specialist sent abroad by the United States usually seeks allies among the younger, less committed citizenry and charges them with the defense of his mission against the hostility that it generates. He places



DR. SAVAGE, seen here with a group of factory workers on a Sunday morning in El Carmen, Colombia, is working with the Inter-American Program in Civil Engineering. He also teaches in Boston College's School of Business Administration and will be with the Sloan School of Management at M.I.T. this coming year as a visiting professor. His interest in Latin America dates back to two years in Venezuela with an industrial company, and he has since been a frequent visitor to Colombia and Peru, where he is supervising research having to do with industrialization and workers' migration.

powerful instruments in the hands of what had been secondary groups and lifts up a new elite which unsettles the old balance, but the old order often has well-tested mechanisms with which it can defend itself against external challenge.

One such mechanism is to play upon the self-doubts of the advanced society. Our American model for the cross-cultural encounter rises out of the lore surrounding the American Indian and his noble, although doomed, opposition to our westward march. We had mixed feelings about that operation which have continued to command our attention. But both the invader's goals and the invaded cultures are different now. Critics of the Ugly American have failed to see this.

The culturally insensitive specialist may not be the bad guy we have made him out to be. During the Venezuelan troubles in the late 1950's the uncomplicated and direct petroleum engineers from Texas were among the few alien groups that did not suffer at the hands of rampaging mobs.

At the apex of these converging forces, the specialist abroad now finds himself under attack from both sides. Abroad he faces subtle resistance, much of it posing as support, which he is ill-prepared to counter, and at home, in place of the understanding which his lonely role of innovation requires he finds instead ample basis for buckling under to old cultures, for compromising the purposes that took him abroad in the first place.

What can we do to regain momentum? As a start, we must seek to recapture some of the pre-Ugly American spontaneity. The misery in the underdeveloped world is too pervasive, the need for innovation too acute to permit any compromise. But we must also develop more knowledgeable styles of foreign intervention. We must document the devices by which the old order contests innovation and counter its finesse with a dispassionate candor that springs from the importance of the task, the will for success, and a realistic sense of humanity.

Technical innovation abroad generates resistance by transferring power from one group to another. A Colombian friend of mine who does village studies in backward settings, tells of a community to which the government dispatched a bag-making machine. Making fiber bags was the village's sole occupation. The ladies made them, two each day, working at home. These bags were surrendered to the local storekeeper in return for the provisions needed to sustain the family. The men kept small gardens, climbing up the mountain trail once or twice a week to scratch at the soil or carry back a few tubers, but the women supported the families and enjoyed the final say in village affairs. The bag-making machine threatened to change all this. It had to be tended by men, and they received occasional cash payments. The old culture was undermined by the new technology, but it refused to cave in. The village ladies attacked the machine with sledge hammers. Under such circumstances who is charged with the unpleasant duty of fending off the attack?

The local understudy's task may be more the fending off of cultural counterattack than the purely technical operation of a new system or machine. The visiting specialist from abroad will be of very little use to him in this phase of his work. In addition to his technical homework, the local man must acquire a complex set of work disciplines, professional attitudes, and special competencies—a slice of advanced technological culture without the underpinning to prop it up—and balance these with the negative signals he receives from the traditional culture in which he was born and bred. A Venezuelan friend once confided in

me: "Sometimes I wonder what in hell am I doing working for a U.S. oil company at this juncture in my country's history. When I go home to visit friends and relatives on holidays, they make me feel squeamish." Would you want to take on those old ladies with the sledge hammers if they were the same ladies at whose knees you had played as a child?

Only recently have we been willing to assign proper emphasis to the cultural reconditioning that must support technical input. For instance, we tend to downgrade personal relationships in favor of performance criteria. The old cultures cling to "it's not what you know but whom you know that counts." More than we, they give attention to perpetuation of all sorts of social contacts.

If we were to conceive of a relationship-performance spectrum, the position of the two cultures which come together in the assistance encounter would be variously slotted. I took two Sloan Fellows, experienced business managers taking advanced studies at M.I.T., to visit a poor Colombian family that I knew. We climbed through a rat-infested gully to the miserable *barrio* where the family lived. The oldest son had been unemployed for two years despite top grades in a bookkeeping school. His only solution to his problem was to find influential connections which he hoped my friends might constitute, but they weren't buying any of that! Instead they barraged him with ideas by which he might get started under his own power, one of which he bought. Today he has a sign on the front of his house announcing that letters are written, documents filled out, and accounts kept by a specialist within. He is finally on his own way. A man may be technically loyal and professionally motivated, but to be fully committed, he must reject the social conventions which have been his only security in the past and which are woven into the fabric of his life. Many a promising technical career has come to grief because a foreign technician did not recognize the bifurcated nature of his involvement and tried to serve the conflicting equities that lay claim to his loyalty.

The complexity of the job we assign to our local counterparts when we work abroad may explain the strange behavior they frequently exhibit. They may attempt to deceive themselves that there is no conflict between new technology and established tradition. Something in all of us longs for such a reconciliation! Or the national of a country being aided may rationalize some way of remaining culturally pure while technologically involved. One of these fellows told his M.I.T. partner: "Look! If we have a plumber in the house to fix the pipes, he does his work without mixing in family affairs. Can't you guys get that computer in without getting involved in local social arrangements?" There is no answer to this man's question, because he is really addressing it to himself. The conflict is not between Americans and his countrymen, but between a universal technology and a traditional order which was not designed to accommodate it.

The stances that the foreign counterpart of the American specialist may adopt in attempting to resolve his dilemma may be roughly classified as follows:

1. Oh, My Papa! The first approach attempts to foist upon the shoulders of the visiting specialist the preoccupations of the local associate and then, by locking him into the familiar role of the father figure, to preclude his capacity for disruptive activity. This gambit arises out of the overwhelming paternalistic bias prevalent in underdeveloped nations. It is most frequently encountered among foreign students and other newcomers to international activity. They will say: "Here am I! Poor little old underdeveloped me! I present myself to you, representing as you do a wise and powerful institution. I place myself in your hands, awaiting the unilateral initiation on your part of activities that you deem necessary to my progress after you have made an assessment of my situation. I myself have nothing to offer except to await expectantly the application of your established competency to my own case." An Eastern saying goes: "Play the little kitten, sir. That way you will find a big cat to carry you about." An individual who manifests such attitudes is obviously looking for a master or patron to take over responsibility for his future.

While this approach will be particularly irritating to Americans, we should remember that it was not many years back that our own Horatio Algiers came to the city in search of a fine, rich gentleman to sponsor their future employment or a Mr. Chips to undertake their education. The response to this approach is to shock the local national out of his inordinately barren dependency posture at the earliest opportunity, and opportunities will soon present themselves. All that is required of the visiting specialist is the firmness and the innate decency not to shrink from the task. But this too often is decried as "ugly Americanism."

2. Costume Party! This gambit is particularly directed at the occasional visitor whose stay is short. The host national puts on his politeness mask. He assumes the sweet spirit of hospitality that was the mode during the subservient colonial era. He exposes the visitor to the violent and picturesque element in his culture, knowing that the traveler values the opportunity to store up the frightful and the odd with which to regale the folks back home and to shore up their divisive and egocentric cultural preconceptions. He behaves like the child who willfully acts in such a way as to convince his parents that their misconceptions about childhood are accurate. He diverts the visitor from his pre-established agenda and effectively insulates him from any meaningful engagement with the real world. The encounter takes place under amicable circumstances, but both parties go their way without either having been significantly affected by the experience. If this is the ploy of the local associate, his orientation is obviously to the old order and its perpetuation, and he has little to offer the cause of technological innovation.

3. Yankee, Go Home! This gambit is particularly in evidence where the local national lacks firm support on the home front and needs the propping up that high visibility of any kind provides. It results in the same kind of insulation of the two cultures as in the previous cases except that the local national may save some of his self-respect, little though it will be. ("We may be producing less oil, less efficiently, but we're producing it on our own.") The play-acting is still there and the same parent-child relationship, but with one difference. Here the child substitutes impudence and rebelliousness for sweetness in seeking to secure parental attention. If he succeeds, he will be impelled to try again. It should be remembered that such individuals represent hostilities and frustrations which are only marginal to the national character they claim to represent. Their power, while very real, is as transient as the brief period between childhood and adolescence. Where some deep-seated personal bent impels an individual to persevere in this mentality, he has nothing to offer the process of technological development. If it is a passing phase, participation in such activities might be a mechanism of rapid maturation.

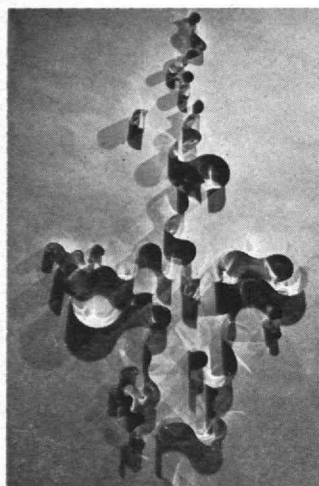
4. Dear Old Daddy! This mentality is perhaps the one most frequently encountered in development activities of an international character. It provides an intellectual cover which makes participation in these activities legitimate by offsetting the anxieties inherent in it. The Dear Old Daddy approach is that of the late adolescent. "Daddy" becomes a lovable old soul, so absorbed in his work that he has lost touch with the real world. For this reason, while one must continue to deal with him, it has to be in a restricted fashion, never completely open or aboveboard. "We may be technologically underdeveloped, but you Americans are culturally underdeveloped," say those who use this approach. "It is proper that we accept your technical assistance teams to help us with our technological backwardness, but we should really be sending cultural assistance teams to the United States to help you with your cultural backwardness!" Such reasoning makes unilateral aid palatable without raising the question of cultural inferiority and thus justifies the dedication to such activities of one's time as a trained local national. With late adolescence it shares the quality of being a transitory stage which leads to eventual maturation.

5. Modern International. We are beginning to get some people who display this approach, but the cause of technological development requires many more. The individual operating within terms of this orientation is typified by the young adult who has put aside the posturings and preoccupations of growing up and is willing to deal with the world as it really exists; in fact, he rather enjoys doing so. "Old Daddy" for him is neither a villain nor a father figure, but simply another working associate. The modern international neither needs a target against which to release his own hostile feelings nor does he tend to discount or over-

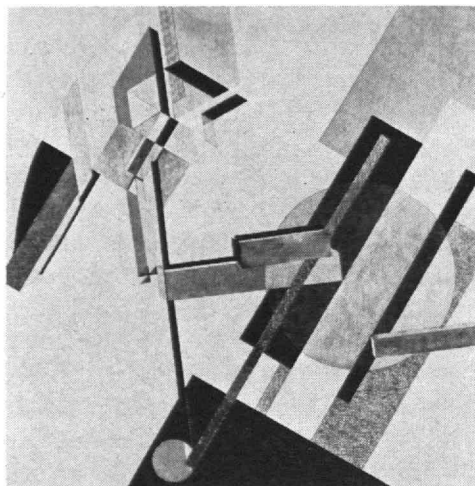
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Kepes: Vision and Value

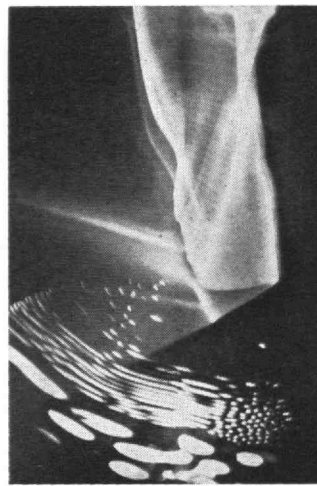
A 15-year search for order and form in the chaos and fragmentation of our modern culture



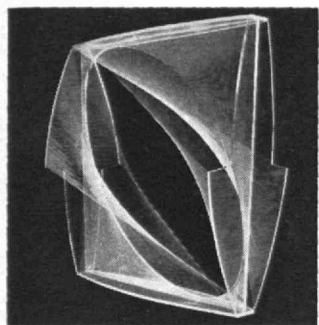
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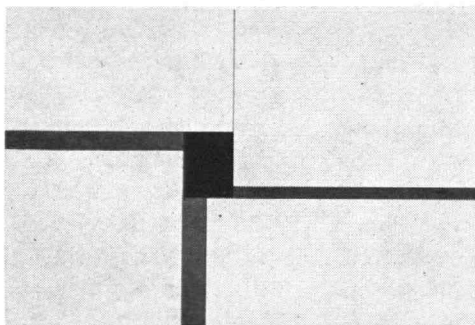
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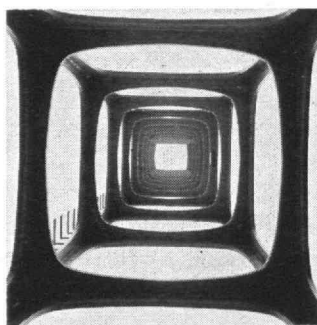
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THE PICTURES on these two pages are from the first three of six projected volumes of *Vision and Value*, edited by Gyorgy Kepes, Professor of Visual Design at M.I.T. (New York: George Braziller, Inc., \$12.50 each). They derive loosely from a 15-year series of seminars conducted at M.I.T. by Professor Kepes in which he, his students, and a number of visiting lecturers have sought expressions to bring order and form out of the chaos and fragmentation of modern culture. The three volumes include essays by physicists, mathematicians, artists, designers, architects, planners, psychologists, philosophers, and educators—many familiar and distinguished names. *Education of Vision*, the first volume, provides basic es-

says linking the scientist's and artist's efforts to comprehend the modern world; *Structure in Art and Science* relates the forms of organization which scientists find in the physical world to those which artists and designers create for man's use and enjoyment; and the third volume—*The Nature and Art of Motion*—seeks to resolve the confusion in man's thoughts and works stemming from the constant motion of his environment. Out of the affinity between art and science developed in these volumes, Professor Kepes and his collaborators move, as August Heckscher writes in *The Saturday Review*, "to penetrate the confusion of forms and images, to begin to create a more sensible human environment."—JOHN I. MATTILL

1 and 3: Studies from a Light and Color course, M.I.T.: Professor Gyorgy Kepes, in charge; Nishan Bichajian, instructor.

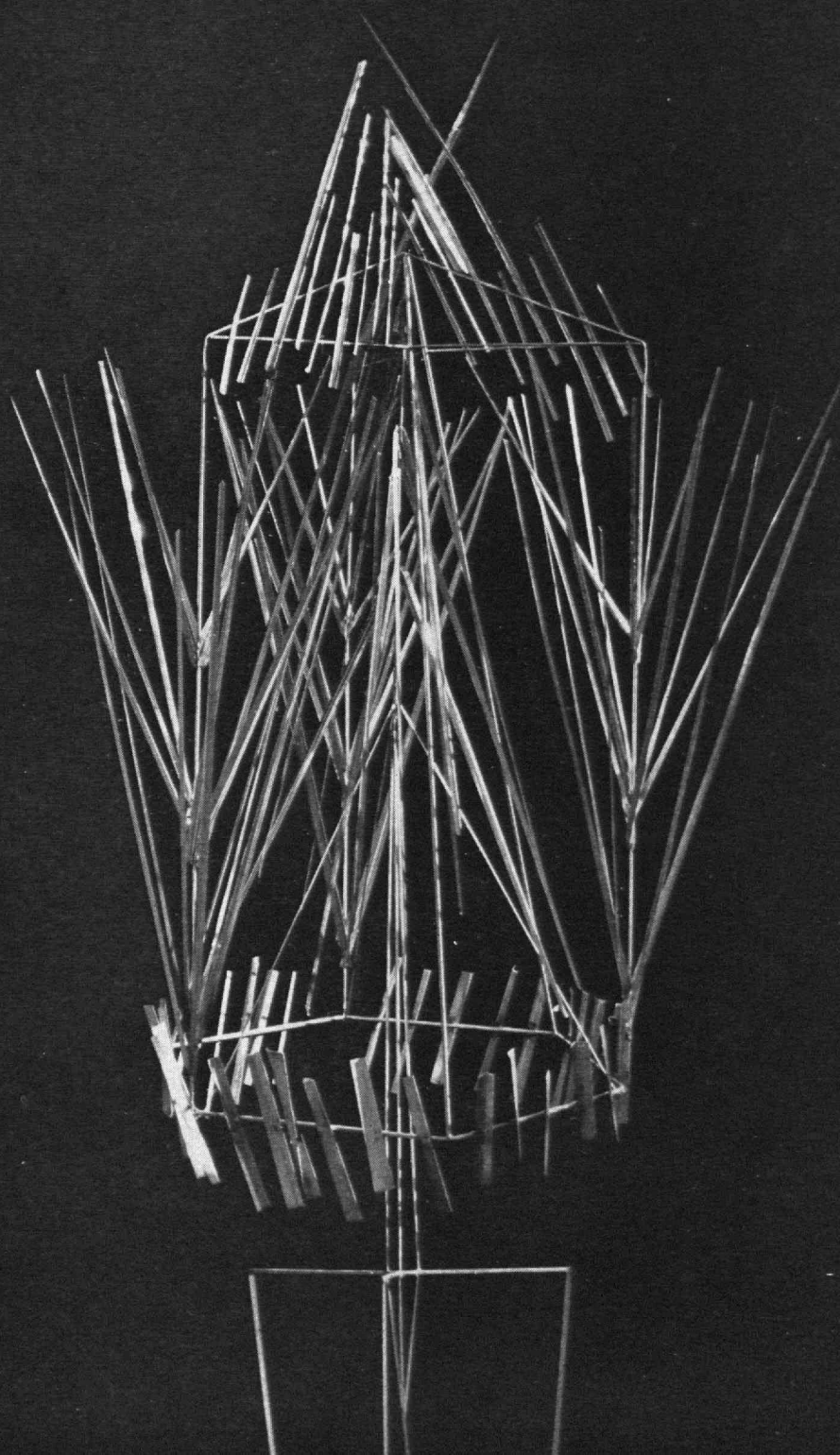
2: El Lissitzky, *Proun 19D, 1922?* Gesso, oil, collage on plywood. Museum of Modern Art, New York. Katherine S. Dreier Bequest.

4: Naum Gabo. *Linear Construction*, 1942-1943. Plastic. The Phillips Collection, Washington, D.C. (Photo, Herbert Matter).

5: Georges Vantongerloo. *Composition, Green-Blue-Violet-Black, Number 105*, 1937. Solomon R. Guggenheim Museum.

6: Ewald Bubner and Frei Otto. Steel-welded church tower, Zehlendorf Schonow, 1962-1963. View shortly after erection, before bells installed. Ground plan 6' X 6'; Height 75'.

On the facing page: George Rickey, *Omaggio a Bernini, Variation II*. Collection of Mr. and Mrs. McGinnis.



The Trend of Affairs

'God and Golem, Inc.' Is Honored

ONE of the five most distinguished books written by American citizens and published in 1964, according to a panel of judges representing the publishing industry, was the late Professor Norbert Wiener's last book, *God and Golem, Inc.*, a comment on certain points where cybernetics impinges on religion.

Dean Jerome B. Wiesner of the M.I.T. School of Science accepted a National Book Award and a \$1,000 prize for Professor Wiener at a ceremony March 9 in New York and recalled that:

"Professor Wiener's interests spanned mathematics, science, engineering, and human affairs, and in each he made an important contribution by exploiting the understanding of the communication and control process which his pioneering work provided. It was precisely in his ability to perceive the universality of the concepts with which he worked that his most important contribution lay. Prior to World War II, Norbert Wiener's principal interest was the mathematical description of random phenomena and the application of the insights that he gained in this work to the understanding of electrical circuit behavior. This led him to a study of feedback processes in servomechanisms which was extended during the war to the problems of radar design. These activities ultimately led him to the realization that communication and control processes in machines, animals, and social systems were basically the same. These ideas, described in his classic work, *Cybernetics*, have had a major impact in many fields.

"In his later years, Professor Wiener tried very hard to acquaint the world with the tremendous social implications of this work and to point out the lessons which could be drawn from it. He described his ideas succinctly in the introduction to another book, *The Human Use of Human Beings* . . .

"In this same book, he further explored human and social evolution as seen from a communication point of view. Society seen in this way is a large-scale, goal-directed, experiment, searching for a means of providing a more satisfactory environment for its members.

"In *God and Golem, Inc.*, his last book, Norbert Wiener attempted his most ambitious task, to set forth the moral consequences of cybernetics, and to resolve the apparent conflict between the self-improving mechanism, man, and the Supreme Being, using again his familiar concepts of communication and control. His conclusion, that as God can in no way be threatened by His creation, man, so man need not be threatened by the machine, is reassuring, coming as it did from one who worried more than most about this problem."

The Stowaways on Spaceships

MICRO-ORGANISMS from the earth will accompany men wherever they land in space, and some no doubt already are on the moon. M.I.T. researchers are setting out now to help the National Aeronautics and Space Administration determine how effectively dry heat can inactivate such hitchhikers.

Spores and cells can stow away in transistors and plastics as well as in specks of dust. Recent studies at the National Research Corporation, in which Gerald Silverman, Assistant Professor of Food Microbiology, participated, showed that many can survive exposure, while in ultrahigh vacuums at extreme temperatures, to ionizing and ultraviolet radiation. Those found in soils are more resistant than those grown in laboratories. Professor Silverman summarized these and other findings at an M.I.T. Industrial Liaison seminar this spring and pointed out how hard it is to detect every one of the billions of living things that may board a spaceship.

To evaluate dry-heat sterilization accurately, more knowledge is needed of the actual spectrum of micro-organisms' resistivity to harsh environments. Professors Silverman and Cecil G. Dunn, '30, will direct the work on this problem now beginning in the Department of Nutrition and Food Science with Stanley E. Charm, '52, of the New England Enzyme Center as consultant.

Professor Silverman believes that proper sterilization of the initial probes sent to other planets can not only simplify the search for life there but also can increase the reliability of the apparatus they carry.

Channels to Computers

TIME-SHARING of computers has opened the possibility of distributing computer logic power in much the same way that a public utility distributes electrical power. But, Richard G. Mills, '54, told an Institute of Electrical and Electronics Engineers meeting recently, there is a "fundamental mismatch" between the communications requirements of multi-access computers and the communications services now available from common carriers.

Communications networks, he said, are built to establish a private "copper wire" connection between two communicating points and charges are based on the time the connection is held. What will be needed, he forecast, are channels that can be time-shared by many users and tariff schedules based on the amount of information transmitted. "The question of how, or whether, needs of this kind can be met with present-day transmission facilities remains open. At present, it is clear only that the demand for communications services of this kind will increase very rapidly."

Mr. Mills is assistant director of Project MAC, a research program at M.I.T. funded by the Advanced Research Projects Agency of the Department of Defense, which has demonstrated the feasibility of time-sharing of a computer accessible to many users.

Elementary Schooling Tomorrow

THREE M.I.T. professors described new primary and secondary school curricula at a March meeting of the M.I.T. Club of Rochester. Professors Elting E. Morison and William Ted Martin, and Visiting Professor Philip Morrison spoke of programs in social studies, mathematics, and the sciences that they are helping to develop at Educational Services Incorporated (ESI).

The proposed curriculum in social studies would show the impact of science and technology on society by means of selected events, said Professor Morison. At the beginning, for example, students would take up the first instrument to produce power—the steam engine—and study its development with models, movies, and James Watt's documents. From the machine, he said, they would turn to the city of Manchester, England, and follow its growth between 1793 and 1830—from a village of 30,000 to a city of 250,000—as a result of steam power in the mills. At ESI Professor Morison directs a group of about 65 university scholars, school teachers, and students working on courses for primary and secondary grades. Their first new curriculum unit is in experimental use in eight schools now and they are developing and testing 11 more units.

Starting in kindergarten, Professor Martin said, pupils could follow a spiraling "guided tour of mathematics" that would repeatedly return to and expand each topic. In elementary grades children could take up the real number system and become familiar with synthetic and analytic geometry, the ideas of sets, and some informal algebra along with arithmetic. They could also be introduced to elementary notions of probability. At the end of high school, said Professor Martin, a student who had worked through 13 full years of mathematics thus "should have a level of training comparable to three years of top-level college training today." This would be equivalent, he said, to two years of calculus and one semester each of modern algebra and probability theory.

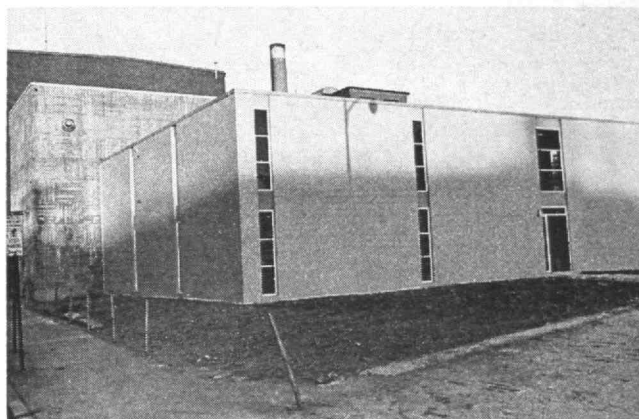
After distributing tiny mirrors and cards with holes in them, Professor Philip Morrison led his audience of about 150 Alumni and school teachers and administrators in an elementary experiment in optics to illustrate his belief that "the lab must be present at all levels." He also cited an ESI publication about seeds that involves pupils in the growing of plants and the use of strips of paper to measure their changing height. Pasted down in a series, the strips resemble a graph and, without instruction, pupils soon begin making hand-drawn graphs.

Dean Emeritus of Science George R. Harrison was the evening speaker and reported "a rush of competition" among high school students to achieve advanced standing on entering college. Some use this accomplishment to graduate earlier, he said, but he advised against this because "the majority of students who go to college today are too immature."

The program was organized by Harry E. Essley, '36, regional chairman of the Educational Council; Gordon L. Calderwood, '27, President of the M.I.T. Club of Rochester; and James K. Littwitz, '42, President-elect.

New High Voltage Laboratory

THE HIGH VOLTAGE Research Laboratory at M.I.T. has long been a forerunner in the use of megavolt x-rays and electrons for the control of malignant disease. In the last 15 years more than 5,000 patients have come to M.I.T. for treatment using the apparatus and methods evolved in this investigative program. This medical activity, together with continuing physical research on the insulation of high voltages and on the production of intense atomic beams, has now been moved to a new building at the southeast corner of Massachusetts Avenue and Albany Street. The structure, built with funds from the Fannie E. Rippel Foundation, the Lahey Clinic Foundation, and the Damon Runyon Memorial Fund for Cancer Research, houses activities formerly in Buildings 24 and 28.



Physicians of the Lahey Clinic Foundation work with Professor John G. Trump, '33, and his associate Kenneth A. Wright, '47, in treating about 45 patients daily. Some receive electron therapy from the four-million-volt Van de Graaff accelerator housed in the tall section of the new building.

Most patients come for megavolt x-ray therapy with the laboratory's two 2 Mev x-ray generators. The laboratory is identified with the development of unique methods of rotational therapy using special protective devices and synchronous field shaping during slow rotation of the patient in the vertical position. The emphasis has been on delivering more adequate dosage to the tumor-invaded region and the protection of nearby normal tissue. The physical and clinical aspects of this work, as well as the clinical results, are frequently presented at appropriate medical meetings. Dr. Magnus I. Smedal and Dr. Ferdinand A. Salzman, research radiologists of the Lahey Clinic Foundation, carry the medical responsibilities of this therapy program.

The building's 10,000 square feet of floor space provide for dressing rooms, offices, a library, and physical science laboratories. The last include an experimental and theoretical research effort under the supervision of Dr. Sanborn F. Philp on insulation of high voltages in vacuum and on the formation of intense focused beams of positive and neutral atoms for a wide variety of research purposes.

10 Pioneering Engineers

THE FIRST GROUP of 10 practicing engineers to attend M.I.T.'s new Center for Advanced Engineering Study have completed their first term. The participants are established professional men who have been selected by M.I.T. and their companies to spend one or more terms at the Institute in a program of continued education.

While at M.I.T., each engineer is associated with a Faculty member of similar technical interests, according to Professor Harold S. Mickley, '46, Director of the Center. With the help of the Faculty associate, a participant undertakes a research and study program, and also attends classes and seminars according to his needs and interests.

The activities of the participants vary widely. All of them spend long hours hitting the books. The majority take an active part in research investigation. Some work in the laboratory of an individual professor, others in large inter-disciplinary laboratories, and many have used the extensive computer facilities of M.I.T. to solve complex problems. The Center has a console that is part of a time-sharing system based on IBM 7094 computers at Project MAC and the M.I.T. Computation Center.

One participant has studied the use of computers for generating multi-symbol communication codes. Another has studied computer logic design, and also finished one book and started another. A third is writing a monograph on engineering surface chemistry, and a

fourth is engaged in a study of modern theories of crystal growth.

The advanced study program is one of several in operation and being planned. They include four-to-eight week special subjects at M.I.T. and continued-education programs at off-campus industrial locations. "It now seems that the activities of the Center should be directed toward two kinds of continued education," Professor Mickley says. "One is to help engineering employers establish programs in their own facilities, and the other is to establish a prototype on-campus school. One function of this school is to enhance the technical background and competence of engineering instructors, both college professors and men who will return to their home organizations to teach special subjects to working engineers. A second is to provide a way for the practicing engineer to bring himself rapidly up to date. A third is to offer senior engineers the continued education that generates the skill and understanding needed for technical leadership."

Next year the Center will be able to accommodate about 30 participants. In the late summer of 1965 the Center plans to begin construction of a new building that will provide offices, private studies, rooms for conferences, seminars and teaching, and an auditorium that will seat 180 persons. The building will face Massachusetts Avenue between Buildings 7 and 33 and is expected to be completed in 1967. The Center was established in 1963 at the suggestion of Alfred P. Sloan, Jr., '95, and with a \$5 million grant from the Alfred P. Sloan Foundation.



Participants this first year in the Practicing Engineer Advanced Study Program at M.I.T. are Theodore Lerner (at console), Bell Aerosystems Co., and (from left) Valentin Koump, '53, U. S. Steel Corp.; Vincent J. Lyons, IBM; Paul E. Brown, '56 (Executive Officer of the Pro-

gram); Charles A. Savant, Space-General Corp.; Charles E. Arnold, '44, Sylvania Electric Products, Inc.; David L. Markusen, Honeywell, Inc.; Gerard P. Canevari, Esso Research and Engineering Corp.; Gerald A. Maley, IBM; and Joseph F. Belton, Jr., Whirlpool Corp.

A Skyscraper to Live In

M.I.T. PLANS to begin construction late this summer of a 30-story apartment building for married students and Faculty members. It will be south of the Kendall Square traffic rotary and integrated architecturally with the Grover M. Hermann Building now nearing completion and the Alfred P. Sloan Building at 50 Memorial Drive. Together the three structures will form a complex designated as the Sloan Campus.

It will be a square tower 76 feet wide and 265 feet high (the new Cecil and Ida Green Building rises 277 feet), and will be built of cast-in-place exposed architectural concrete. A raised plaza around the base will be continuous with one around the Hermann Building and cover underground parking places.

The tower will contain 216 efficiency, one- and two-bedroom apartments, about one-fourth of which will be occupied by members of the Faculty. Their presence among the married students is expected to enlarge opportunities for interaction between teachers and students. There will be both open and enclosed lounge areas on the roof, and a nursery school on the ground floor.

The project will cost more than \$4 million and be financed through a self-liquidating loan from the Community Facilities Administration of the federal Housing and Home Finance Agency and an anonymous gift to the Institute. The architects are Professor Eduardo Catalano of M.I.T. in association with Crawley Cooper, Robert Brannen, and Paul Shimamoto, '61, of Cambridge, the same group chosen for the Hermann Building. Completion of the building is expected in mid-1967.

Flying by Ear

MORE PRECISE knowledge of men would help engineers assign functions wisely to men and to automatic equipment in high-performance vehicles. Under Professor Y. T. Li's ['38] direction, human behavior is being studied now in the Man-Vehicle Control Laboratory of the M.I.T. Center for Space Research.

At a New York meeting of the Institute of Electrical and Electronics Engineers this spring, Assistant Professor Laurence R. Young, '57, and Jacob L. Meiry described some of this research. They have studied control capabilities shown by volunteer students in a cockpit section from a jet fighter, so set up that it can be rolled at any desired erratic rate, and have compared their subjects' responses to visual and vestibular cues.

When the vehicle instability is long-term and gentle, they reported, visual perception appears to be the more useful source of information for corrective action—but when things get violent, subjects rely more on what the fluid-filled, semicircular canals of their inner ears tell them is happening.

"Flying by the seat of the pants," they realized, might also make some contribution. But their subjects performed about as well when the cockpit chair was heavily padded to dampen tactile cues as when the chair was a hard, good conductor of those cues.



FOR THE SECOND YEAR, M.I.T. has now had co-ed cheerleaders. Captained by Barbara Desmond, '67, those grouped around her from left are Louise Lentin, '68, Sherry Gulmon, '68, Janine Knauf, '67, Susan Downs, '68, Jennifer Rudd, '68, and Mary Gordon, '68.

Most Men Study Longer Now

FEWER M.I.T. men go into business and industry now with only bachelor degrees, says Thomas W. Harrington, Jr., the Placement Officer. Of this year's class, 75 per cent intend to go to graduate school, as compared to 26 per cent 10 years ago. Only 13 per cent of the seniors plan to leave school and take jobs this June; 40 per cent did so a decade ago.

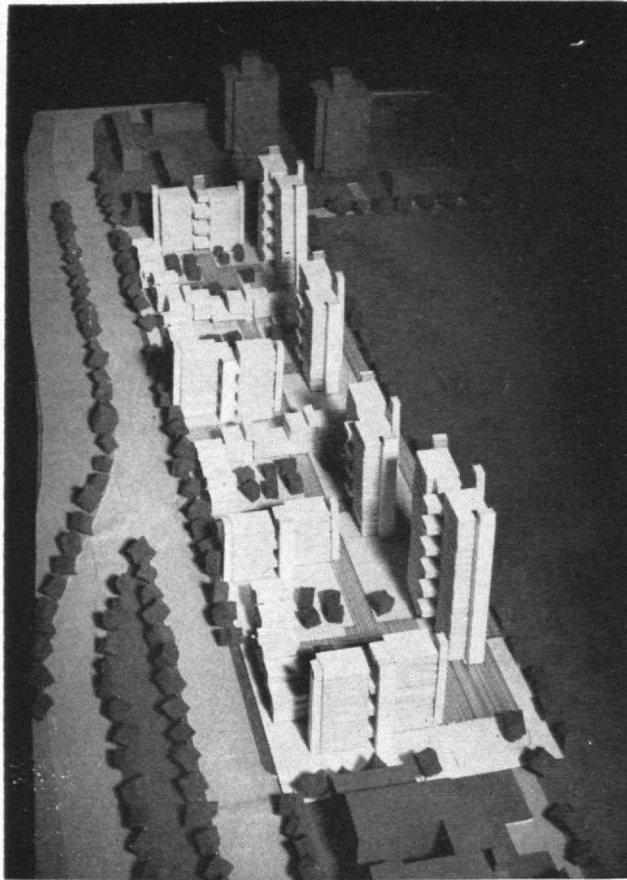
Advanced study only postpones the choice, however, and 38 per cent of this year's master's degree candidates and 37 per cent of those with doctoral degrees have elected careers in industry. Twenty-four per cent of the doctoral students want to become teachers.

More jobs are available this year than last, says Mr. Harrington, and starting salaries are up about 3 per cent, but there are signs that the upward salary spiral is beginning to level off. This year 383 employers have visited M.I.T. for interviews, as compared to 375 in 1964. An outstanding degree candidate can get as many bids as he wishes, but the typical M.I.T. student usually selects from only two or three prospective employers whom he has investigated in advance.

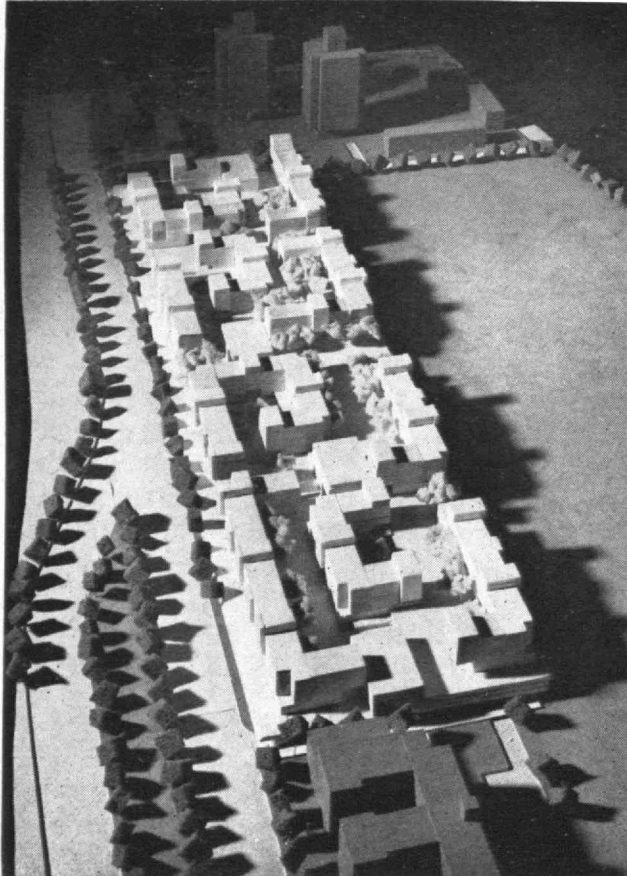
The students' social outlook is reflected in requests for short-term work abroad and in the kind of U.S. employer selected. In choosing employers, fewer are going to government-supported glamour companies, says Mr. Harrington, and more are turning toward older, basic industries.

Students' Ideas For Students

Undergraduates show ways to house 1200 men on a 6-acre tract on the banks of the Charles



William Pan, '66, would place towers behind low buildings.



Richard Solomon, '66, favors courtyards between dorms.

SOME of its own undergraduates are giving M.I.T. their ideas about the design of dormitories for the Institute. They developed their plans, including drawings and scale models, as an exercise in a third-year architecture class for Associate Professor Marvin E. Goody, '51. But their problem was a real one—to design four dormitories, each housing 300 undergraduate men, for a narrow six-acre rectangle along the Charles River at the west end of the M.I.T. campus.

Because they are M.I.T. students, many members of the class found an unwritten specification not included in the assignment. An important aspect of M.I.T., they say, is the independence that the Institute gives its undergraduates. For this reason and to avoid a barracks atmosphere, many of their designs have apartment-like units for small groups of men. "We visualize this as having a key to a door and from there on you're in your own apartment," was one comment.

In the plans of Richard Solomon, '66, of Chicago, such an arrangement consists of a suite of 10 single rooms whose occupants would have a central two-story lounge, or living room. "Having a place that is yours is most important," he says, and to achieve the atmosphere of a small dwelling he proposed low buildings with connected inner courtyards and entranceways each leading to only 20 rooms. Robert M. Sarly, '66, of Newton, Mass., grouped 10 rooms and two study spaces around a two-story living room, which has a balcony around two sides of the upper level.

Some students believe that only tall buildings would take best advantage of the view of the Charles River Basin and Boston. William C. H. Pan, '66, of Formosa, and Mr. Sarly combined both tall and low buildings (Mr. Sarly's towers were 24 stories high), and R. Philip Dowds, '66, of Wilmington, Del., designed three T-shaped towers that would give each student a river view and would provide a balcony for each suite.

According to David T. Howard, '66, of Lincoln, Mass., the dormitories should be related both to the river and to Briggs Field, "in back." Therefore he set his buildings on a skewed axis, which also opens their inner courtyards to late afternoon sunlight. The design of all the dormitories follows M.I.T.'s housemaster-tutor plan and each provides living quarters and seminar rooms for the tutors.



R. Philip Dowds, '66, and others explained their proposals and were questioned by the Faculty and planning officers.

New Books

TRIO: The Revolting Intellectuals Organization, a novel by Patrick D. Wall (Clarkson N. Potter, Inc., \$4.95).

Reviewed by Polly Park

IN THE same way that I'm just plain curious about the contents of a moving van when it backs up to a new neighbor's house—and what housewife isn't—so I find myself equally curious about the private lives of our intellectuals. Do they ever really divorce themselves from their intellectual pursuits long enough to remember to pick junior up at Scouts or Jane at the dancing class? Can these men climb back down the beanstalk to breathe the same heavy air that we earthly mortals must breathe? When I pose these questions to my husband he dismisses the matter by saying that what professors think in their off hours is no business of mine. But I am prepared for such a reaction from him, because he knows that my favorite hunting ground for these vital bits of information is his old alma mater, M.I.T.

Now my search is over. No more must I spy along the banks of the Charles. For no less than an M.I.T. professor himself, Dr. Patrick D. Wall, a graduate of Oxford and the holder of three advanced degrees, has written a novel entitled *TRIO: The Revolting Intellectuals Organization*, which proves what I have suspected all along; namely, that when the recess bell rings at M.I.T. the professors, instead of turning their minds to such mundane matters as whether it's time to take down the storm windows and put up the screens, retire to some smoke-filled den with a steaming hot pot of tea and speculate about even bigger and brighter intellectuals.

TRIO begins when a New York psychiatrist decides that the best therapy for his most frustrated intellectual patients is for them to join forces and pool their talents to right wrongdoing that goes beyond the natural processes of the law. The idea spreads and before long there are *TRIO* groups in Italy, France, and England, too.

Their first important operation is to expose an American businessman and his Arab friend who have illegally sold condemned antibiotics to the natives of a North African country. The American is their first target. By posting his picture and a description of his crimes beneath a sign that says WANTED BY THE F.B.I. in post offices, they quickly attract the attention of the F.B.I. They then learn that the man is secretary-treasurer of his Country Club, gain access to the club's cash box, remove money, and leave notations in the account book to cast suspicion on him. The Arab is exposed even more spectacularly. *TRIO* re-routes a plane carrying him from Rome to London, forces it to land at a French air-drome, and kidnaps him. Run-ins with the law become

more frequent as *TRIO*'s activities increase. Fast cars, escapes, murder, and intrigue become the order of the day.

Those who like their science-fiction on an intellectual, international level will surely enjoy *TRIO*. The author has ingeniously balanced wit, excitement, and learned discussion so that none tips the scales. There are times when the reader feels certain that a simple discussion will suddenly catapult into a discourse of several hours, but it doesn't, and the story races along.

TRIO's world is cold and sterile, devoid of human emotions. A world so cold, in fact, that sometimes one feels that the sun has been turned off. And who knows—perhaps Dr. Wall can arrange for that in his next novel.

THE NERVES OF GOVERNMENT, by Karl W. Deutsch (The Free Press, Glencoe, Ill., \$6.50).

Reviewed by Professor Huston Smith of M.I.T.

EVERY intellectual revolution carries implications for many, perhaps all, important areas of thought. In this book Professor Karl Deutsch, who taught at M.I.T. for many years before moving to Yale and recently to the University of Michigan, explores the implications of the cybernetics revolution for political science.

To date political scientists have approached governments as if they were machines (Machiavelli, Hobbes), organisms (Burke, Spengler), or historical processes (Kant, Hegel, Marx). Each of these models has yielded useful insights, but each is now also seen to have definite limitations. We need a new model to guide our thinking about governments and suggest fruitful lines of investigation. Professor Deutsch thinks the model of a communications system is a likely candidate. We would do well to begin "to look upon government less as a problem of power and more as a problem of steering." Instead of dwelling on government's "muscles"—arms, manpower, GNP—the time has come to study its "nerves," the channels of communication by which power is controlled.

Every invitation to don a new thinking cap is exciting, and this one is no exception. If for the general reader the book as a whole does not sustain the excitement its preface arouses, this may mean no more than that the book was not written for him. The man in the street wants conclusions, and these *The Nerves of Government* does not pretend to offer. What it offers instead is method: a redefinition of political concepts in cybernetic idiom and proposals for new lines of research which the cybernetic model suggests. Such items will naturally interest the professional student of politics more than the layman who is not likely to be much edified by the suggestion that he think of national will, say, as "the set of internally labeled decisions and anticipated results, proposed by the application of data from the system's past and by the blocking of incompatible impulses or data from the system's present or future," or the prospect that the point at which a group of people

(Concluded on page 50)

Biology's Challenges to an Engineer

Three short autobiographical stories by an M.I.T. professor of communications biophysics are indicative of opportunities

By Professor Walter A. Rosenblith

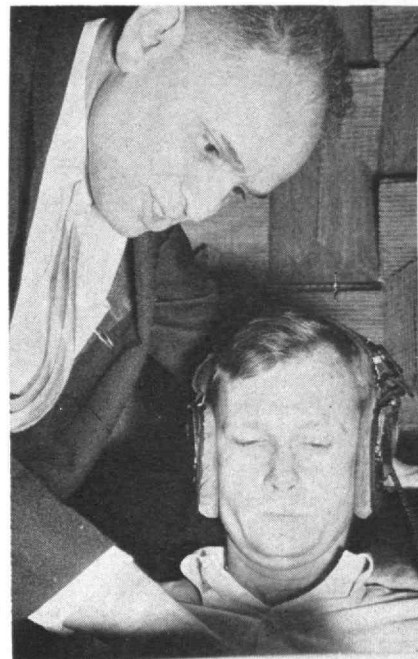
DIFFERENT individuals learn about problems that involve both engineering and biology (or engineering and medicine, or engineering and social science) in different ways. I, for instance, was offered three distinct chances to become involved with them—all three, by the way, after I had my engineering degrees. Since each of the experiences can convey something of the grain or fabric of the problems, I shall recount them in a manner not unlike that of a lawyer or physician who reports case histories in detail instead of trying to pontificate in often fragile generalities.

My first opportunity came when a physician, who headed a consulting service for industrial medicine, had the notion that high noise levels might be related to the frequency of accidents in a given factory. This question proved too difficult for direct investigation because a factory in which work of comparable hazard could be carried out in the absence of noise could not be found. However, my employer was also interested in demonstrating physiological effects of noise that were less dramatic than accidents. Hence, for each member of a population of factory workers I determined his exposure to noise and his hearing for pure tone. On the basis of these data, I was able to establish that for this population the amount of permanent

hearing loss suffered was, in a statistical sense, related to the severity of the noise exposure.

Earlier observers and investigators had already suggested in qualitative terms that severe exposures might be responsible for hearing losses suffered in industry. Our data, however, because of their more quantitative nature, seemed to warrant the conclusion that steady, life-long exposure at even relatively low noise levels could produce—at least in susceptible individuals—appreciable hearing losses. Such a conclusion indicated that measures to protect man's hearing, either by reducing unnecessary noise or by providing ear protection, are required for human welfare, at least in order to guarantee reliable auditory communication.

To understand how prolonged noise exposures affect man's hearing requires that we know more about the normal changes that aging produces in man's auditory capacities. As longevity becomes more prevalent, engineers who design communication equipment, such as telephones, hi-fi, and television sets, certainly need to know how different age groups differ in their abilities to communicate via their sensory channels. This is a clear instance of the relevance of biological data to the engineer, though it is also true that most of these data on human sensory



Professor Rosenblith (above) with a subject in a soundproof chamber.

performance require sophisticated engineering equipment for their measurement.

A Paradox to Ponder

The problem of noise obviously concerns both man and machine, and thus clearly involves other factors than just engineering. Whatever the practical and even social significance of the conclusions of my investigation concerning the effects of industrial noise exposures, they were overshadowed in my mind by a single finding. The observed hearing losses did not occur in the frequency region in which most of the acoustic energy of the noise had been concentrated. How was one trained, as I had been, in physics and communication engineering to interpret this apparent paradox?

Von Helmholtz, whom most people today consider the earliest great

(Continued on page 44)

A MAJORITY of the 22 contributors to a new book for the general reader, Listen to Leaders in Engineering (David McKay Co., \$5.95), were M.I.T. men. This article was excerpted from a chapter on "Engineering in the Sciences of Life and Man." In addition to Professor Rosenblith, the essayists represented included Vannevar Bush, '16, James R. Killian, Jr., '26, Gordon S.

Brown, '31, Jerome B. Wiesner, F. E. Terman, '24, Rolf Eliassen, '32, George S. Schairer, '35, Oscar T. Marzke, '32, Edward E. David, Jr., '47, Charles S. Draper, '26, and other nationally noted engineers.

Professor Henry G. Houghton, '27, contributed to a companion volume entitled Listen to Leaders in Science, issued simultaneously by the same publisher.

Elusive Clouds In the Arctic Are Detected

*They can be examined at night
with optical radar units now*

NO ONE yet knows the origin and composition of the vast noctilucent clouds that appear in the earth's high latitudes. They are seen only during twilight when the sun is from six to 16 degrees below the horizon. They usually form in July and August at an average altitude of 82 kilometers where the temperature is about 289 degrees below zero F.

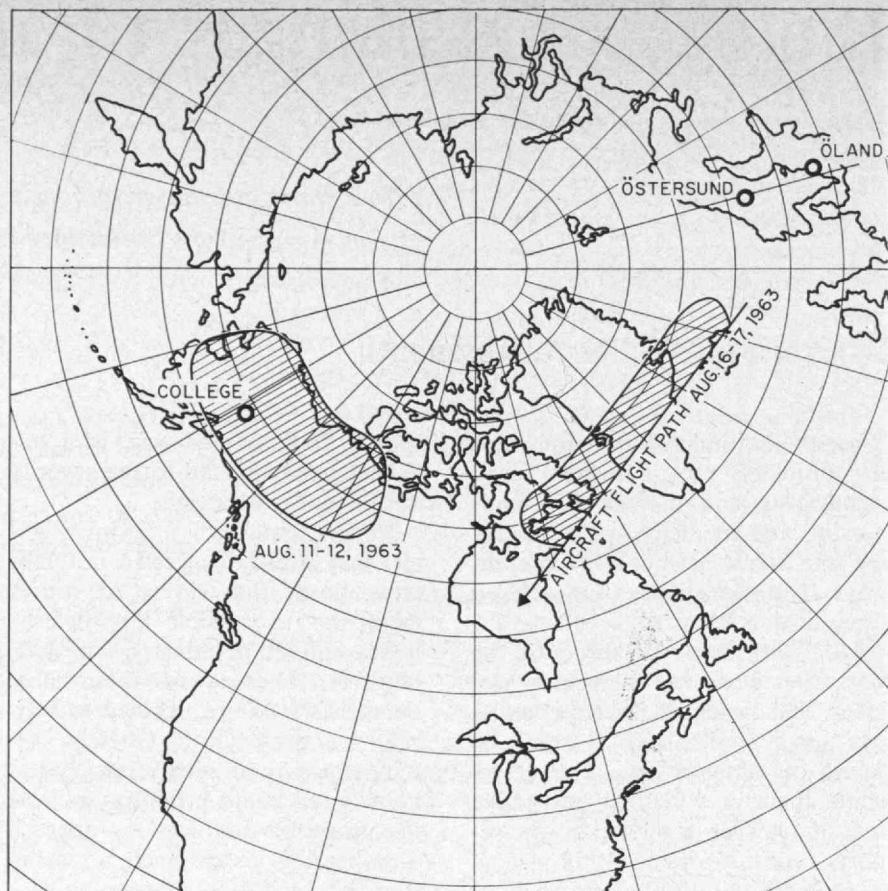
If an observer inverts the image of the silvery clouds, they often appear as sealike waves. One cloud's size in 1963 was estimated to be more than a million and a half square miles, and some scientists have conjectured that the clouds extend all around the pole over North America, Europe, and Russia.

Yet they are elusive. The clouds of the troposphere often obscure them, so their true spatial extent is not known. Some displays last for hours or tens of hours, but portions of a cloud may form and vanish within a half hour.

Although these clouds have been observed and studied in Europe since 1885, only a few sightings in North America were reported before 1962. The summer of 1963 was a season of apparently unprecedented activity over the Northern Hemisphere and 25 displays were seen from North America. Scientists have noted that times of greatest frequency of noctilucent clouds coincide with low sunspot activity.

Some believe the clouds are layers of cosmic dust, perhaps the remains of meteorites. Others think they represent condensation of water vapor. Giorgio Fiocco, Assistant Professor of Geophysics at M.I.T., notes that rocket samplings have revealed both vapor and dust, the latter containing traces of iron and nickel that indicate extraterrestrial origin.

A new means of observing noctilucent clouds is optical radar, which



Map shows area of two clouds, one seen from jet, and M.I.T. observation sites.

Professor Fiocco has done much to develop. In 1963 Professors Fiocco and Louis D. Smullin, '39, pointed their optical radar at the zenith over M.I.T.'s Lincoln Laboratory, in Lexington, Mass., and detected echoes from what they presumed to be meteoric dust. Although noctilucent clouds have never been seen at the latitude of Lexington, optical returns were recorded from minute particles at an altitude of 80 kilometers. These and more recent studies were the first such applications of optical radar and established its usefulness in meteorological research.

In Alaska and Sweden

Last summer M.I.T. research teams took identical optical radar units to two points in the noctilucent-cloud belt, 180 degrees apart around the pole. Karel B. Urbanek, of the Research Laboratory of Electronics, and Gerald W. Grams, G, spent two months in College, Alaska, at the invitation of the Geophysics Institute of the University of Alaska, which has organized a North American network of 90 stations for observing noctilucent clouds. During

the same period, Professor Fiocco and Roger J. Breeding, G, sought noctilucent clouds from sites in Oland and Ostersund Sweden. There they joined researchers from the Air Force Cambridge Research Laboratories (AFCRL) and the University of Stockholm. The M.I.T. efforts were supported by the Research Laboratory of Electronics and in part by NASA and the AFCRL.

The optical radar observations indicated the clouds were indeed vast. Although plagued by bad weather in Sweden and infrequent cloud displays in Alaska, the observers have since found that on several occasions the widely separated units recorded virtually simultaneous returns. The optical radar was operated at night when the clouds could not otherwise be detected. The scientists are continuing their studies of atmospheric dust and trying to correlate their findings with other geophysical events. In addition, they are now developing optical radar techniques for measuring atmospheric temperature and wind velocity from a distance by studying the Doppler shift in frequency of the scattered laser light.

Life in a Miniature Gas Bearing

The helium atoms think the M.I.T. Instrumentation Laboratory is crucifying them, but will courageously co-operate in more tests

By Paul Steranka, '60

CALLING ALL CARS! Proceed to the corner of Massachusetts Avenue and Albany Street! Hundreds of helium atoms are scattered in the roadway, exhausted."

As ambulances arrive and the helium atoms are removed, several stumble from the doorway of the M.I.T. Instrumentation Laboratory. "Are there more inside?" a helium doctor asks.

"Thousands," one grunts.

"What happened?" the doctor implores.

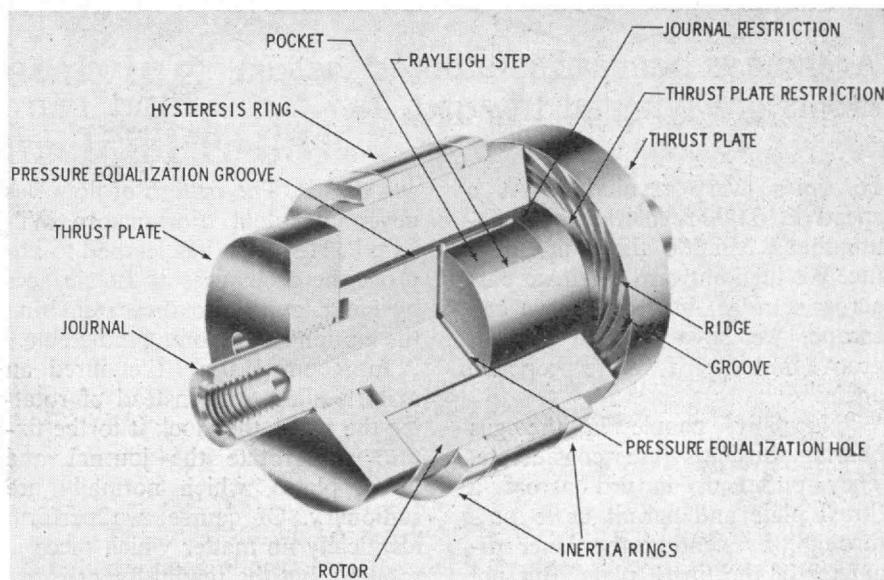
"That Miniature Components Group is crucifying us. Oh, what torture! Why, they are . . ." He topples onto the sidewalk.

The Helium Secret Service Force takes over the questioning as the atoms are revived at the hospital.

In Room 802: "Yes, I can explain. You have heard of gas-lubricated bearings, haven't you? The Miniature Components Group is building one less than an inch long and one-half inch in diameter. Its total weight is six grams, which is less than a quarter of an ounce.

"The design incorporates a stationary journal, two stationary thrust plates, and a rotating mass. A 50 millionths of an inch gap separates the journal from the rotor in the radial direction, and a similar gap exists between the rotor and each thrust plate in the axial direction. The spinning of the rotating mass causes a hydrodynamic flow of gas in these gaps, which supports the rotating mass in all directions.

"The Miniature Components Group intends to use the gas bearing as an extremely stable angular momentum source for inertial navi-



gation under severe environmental conditions. The bearing must withstand high linear and vibratory acceleration in all directions, as well as high rates of rotation about an axis perpendicular to the spin axis, which is commonly termed slewing. It must start reliably each and every time power is applied.

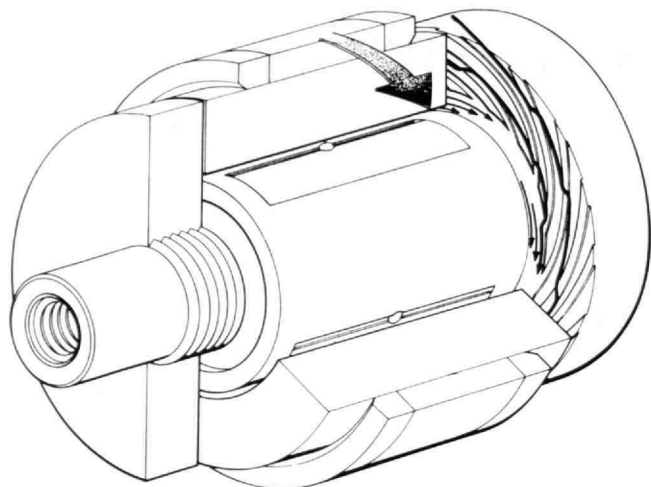
"Why were we helium atoms selected? Because of our high viscosity among the gases. We can develop high shear stresses and, therefore, sufficient pressure to support the rotor. But, even we are straining in these environments. To evaluate our capabilities, the Miniature Components Group has been squirting us from a tank of helium into a test fixture, conducting a series of tests, and then releasing us into the atmosphere."

In Room 1015: "Michele S. Sappupo, '52, is the instigator. As head of the Miniature Components Group, he has developed the pendulous integrating gyro accelerometer into a precise inertial guidance component. The gas bearing is his latest innovation."

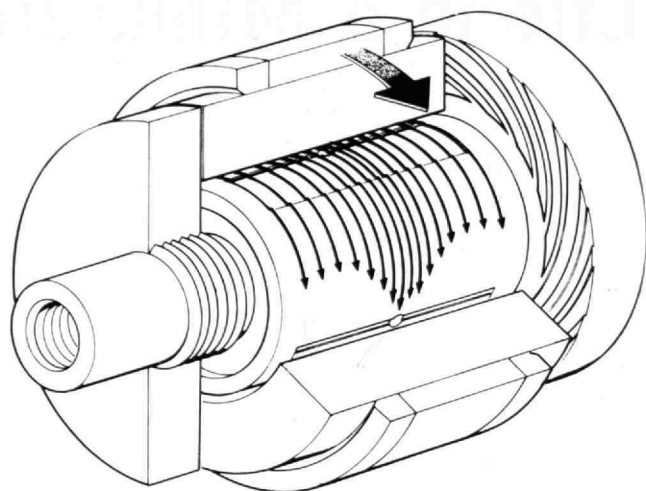
In Room 1078: "I recall an early start-stop test. The gas bearing was started and stopped once every 20 seconds. After a thousand times, a journal surface particle tore loose and jammed the gap. Rumors are that some gas bearings have been started and stopped over 50,000 times to investigate the wear resistance of the supporting surfaces. But now, the anodizing of the stationary journal and thrust plate surfaces has been developed to the extent that no wear occurs. In addition, the surfaces on the rotating piece consist of a variation of window glass. Consider how smooth glass is!"

In Room 1099: "Ordinary running is severe in itself. The thrust plates are equipped with spiral, pumping grooves. When the gas bearing is started, the motion of the rotating mass pumps us inward along the grooves and squeezes us together. Being trapped, we are dragged circumferentially around the thrust plate by the rotor, down into a groove, up on a ridge, down into another groove, and on and on,

MR. STERANKA indulges in imaginative technical reporting when not abusing helium in the M.I.T. Instrumentation Laboratory.



As the gas bearing is started, helium atoms are pumped inward....



and reach the journal gap.

16 times every revolution. At a speed of 16,000 revolutions per minute that's 256,000 times per minute! We inch outward when we pass across a ridge, but, before we can escape, we have reached another groove and inward we are propelled again.

"Normally, people in the gas bearing business are considerate. They pump us inward across a thrust plate and permit us to pass through, by venting the inner diameter of the thrust plate. But not these people! We are pumped in and made to labor continuously."

In Room 1112: "I was involved in an early gas bearing failure. Because of the poor surface finishes and relatively large variations from squareness and flatness, the motion

was erratic. The pattern of flow was never consistent. Fortunately, William P. Hemstedt has learned to improve the geometries of the surfaces by hand lapping to the extent that the motion has become predictable."

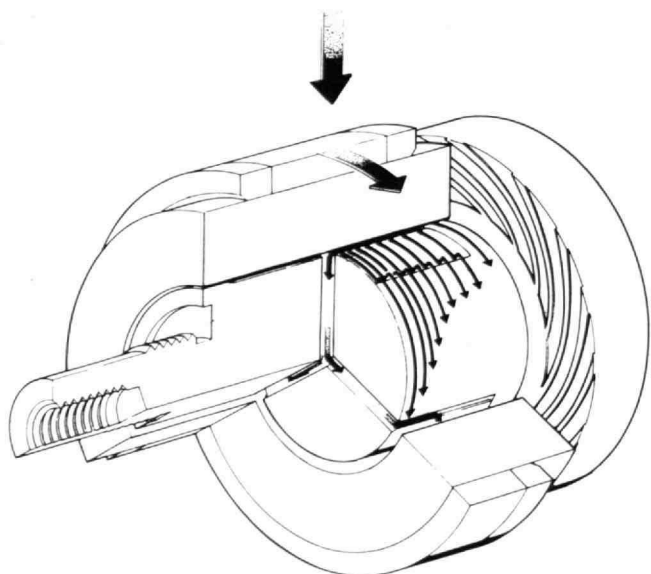
In Room 1201: "I endured an axial loading test. Instead of rotating the rotor, they lock it to the fixture and rotate the journal and thrust plates, which normally are stationary. Of course, we perform identically no matter which piece is rotating, but the readjustment is aggravating."

"Then, an axial load is applied. Our assignment is to prevent the rotating journal and thrust plates from touching the rotor. Obviously, we compress and respond in unison. In compacting ourselves, the rotating

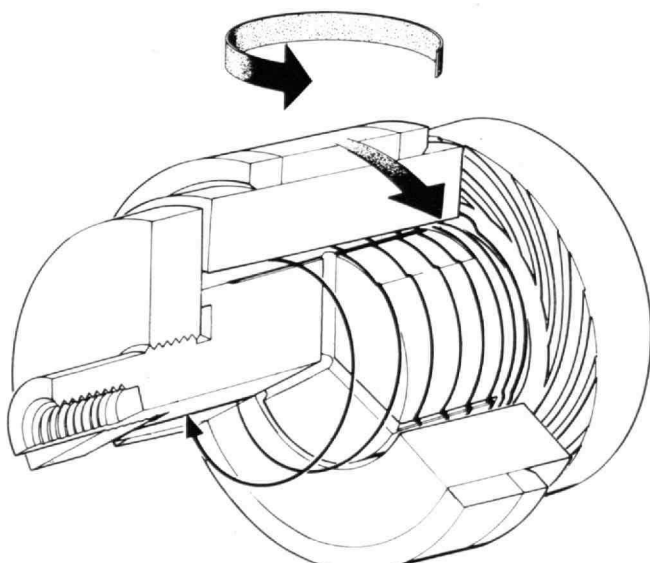
thrust plate is allowed to draw nearer the stationary rotor, and this displacement is measured, although the movement is only a few millionths of an inch. A balanced capacitance probe network, with which a tenth of a millionth of an inch is discernible, is the measuring tool.

"As we compress in the decreasing axial gap, we naturally expand in the opposite, increasing gap. Because of this pressure differential, groups of us flow along the journal from the small to the large gap and subsequently escape. But, in typical M.I.T. fashion, restrictions have been placed on the thrust plates and journal to curtail this flow sharply. Maintaining pressure against a heavy axial load over a long period

(Concluded on page 36)



Under a radial load, some atoms flow through the holes in the journal....



and, under slewing, they spiral down the journal.

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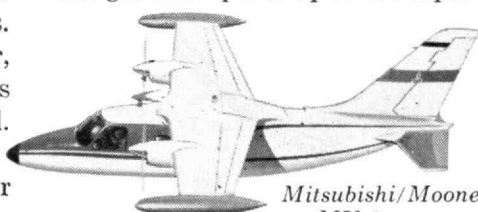
Military version of the TPE-331 is the T-76 — selected by North American Aviation and the U.S. Navy to power the OV-10A light armed reconnaissance airplane.

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Garrett is experience



*AiResearch Manufacturing Divisions
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Life in a Gas Bearing

(Concluded from page 34)

of time is exhausting. I was engaged in a test sequence which specified axial forces reaching the equivalent of 40 g's axial acceleration. Imagine, sustaining a rotating mass 40 times its normal weight. Thank goodness, this gas bearing is miniaturized and has only a four gram rotating mass."

In Room 1313: "I can attest that the original plain, cylindrical journal was modified to obtain vibrational stability. The modifications consist of Rayleigh steps and pockets and pressure equalization grooves and holes. A failure occurred during vibration of a plain journal at the AC Spark Plug Electronics Laboratory in Wakefield, where much of the early development was achieved. Actually, our weakness occurs only at one frequency, which is one-half the rotational frequency of the rotor. Our circulation around a plain journal is streamline, but, under this half-frequency vibration, they 'catch us where we ain't.'"

In Room 1595: "In a radial loading test, we are secured on the end

of a centrifuge arm, aligning our spin axis parallel to the centrifuge rotational axis. Whereupon, rotation of the centrifuge applies a radial load to the rotating mass. Occasionally, suction pulls you into a pressure equalization hole, and right through the journal you fly.

In Room 1609: "In a slewing test, we begin by rotating normally in the gap. Ensuing is a revolving of the gas bearing about an axis perpendicular to the spin axis. Instead of the rotating mass advancing off-center either strictly radially or axially, the rotor twists. We resort to contortions to support the rotor. Besides, we are pumped inward across one thrust plate in spiral fashion, compelled to travel a helical route along the journal, and conclude the trip by spiraling outward across the other thrust plate. The flow pattern is a spiral, helical path."

In Room 1620: "Speaking from experience, nothing is as violent as vibration, either axially or radially. Under constant acceleration, you are compressed, but slowly become adjusted. However, under vibration, continuous expansion and contraction is demanded. Not at only one

rate, but over a range of frequencies from 20 to 2,000 cycles per second. During a scan of this frequency spectrum, oscillation commences at a low frequency and, as the frequency rises, faster and faster vibration follows. Bear in mind also, that the vibration is not of a small magnitude, rather 20 g's of acceleration."

In Room 1789: "Listen, I masterminded this plan to escape from the laboratory to bring attention to a potential danger. Those people at the laboratory will not be satisfied with the *status quo*. Being convinced that we can meet the performance initially mapped out, their minds will fill with vagaries. Take Vincent J. Readdy, who initiated the whole series of events by designing their first gas bearing. Is his mind idle? And, what about Robert S. Henderson, '46, who has kept the gas bearing program progressing? Do you think, for an instant, that he will permit any lagging? The Air Force already has inquired about higher performance.

"We helium atoms must be conditioned to the quests that lie ahead. I remember that an identical crisis arose when helium was first liquefied. We coped with that disturbance, but after undue delay. Now, technology is advancing more rapidly. I can envision a day when they will be using us as ball bearings. After all, that's all we really are!

"Secondly, the Miniature Components Group must be apprised of our basic character in a gas bearing. Guidance must be given to channel their ideas of re-design properly. The reduction in groove depths, the decreasing of the gaps, and the skills of improving surface finishes and geometries must become evident. Otherwise, as they grow more curious, radical tests will be conducted, and failures will crop up again. We have pride, too. Our feelings are hurt when failures occur. People begin to wonder whether another gas might be more suitable. Our president must act to prevent another catastrophe."

Armed with the information garnered from the patients, the Helium Secret Service atoms filed their reports. Informed of the situation, the president acted without hesitation. An education committee was soon proceeding toward Cambridge. Future gas bearing development depends on their success.

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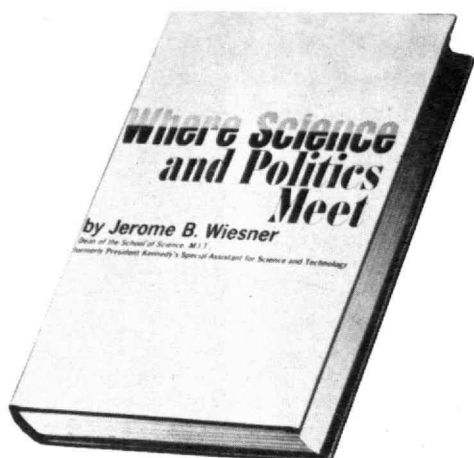
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by Jerome B. Wiesner

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This is a discussion of science in modern society by President Kennedy's Special Advisor on Science and Technology and Dean of the School of Science at the Massachusetts Institute of Technology. Dr. Wiesner writes of the important and special role of science in a contemporary world, and the place and function of the scientist, both in general society, and within the American Government. Among the subjects he examines are the problems, possibilities, and challenges of nuclear and gradual global disarmament; the problems and opportunities confronting the United States today in respect to education, and the role of scientists as advisors and formulators of policy. **Dr. Jerome Wiesner** is one of the best known and most respected scientific administrators and government advisors in this country today, and he writes directly from his own experiences, making his volume an indispensable work for all those interested in these crucial areas.

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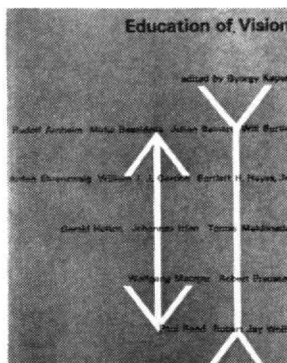
A series of world interest edited by **Gyorgy Kepes**

After three years of intensive work on a project involving many of the world's foremost authorities in the arts and sciences, we are proud to announce the publication of the VISION + VALUE series, edited by Gyorgy Kepes, Professor of Visual Design, M.I.T., and author of *Language of Vision*.

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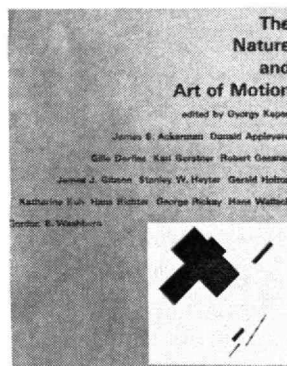
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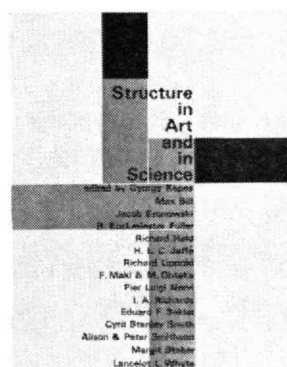
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Needed: More Ugly Americans

(Continued from page 21)

rate the input that the visiting specialist represents. For these reasons he is equipped to deal with associates from the technologically advanced nations in a more candid and professional manner. He has learned to accept and operate in terms of the restrictions that his own condition imposes upon him and he makes the same provisions for the limitations that his partner manifests. He is able to make more candid assessments of the development processes and is free to participate in them without inhibition. His affection for his own culture is such that he can contest, at times harshly, the position of those who make its perpetuation the sole basis for action and decision.

The specialist abroad is a harbinger of more than technical input. His other task is to help build a cultural pocket within which his technical installation may be sustained. In accomplishing it, he must make some disposition of the negative signals that he receives both from the host society and his own historical tradition. While keeping his own preoccupations in hand, he must be serviceable to his local associate who is caught up in the difficult business of drastically revising both his work habits and cultural assumptions.

The old Ugly American's impact on the local culture was unwitting. Locked into the work-orientation of his own traditions, he denied that any other orientation was possible, an incorrect but temporarily useful position. He offered his local associates a different kind of attitudinal model, an extreme one-dimensional one it is true, but also a very serviceable one. He made no attempt to study the local culture because he had written it off. His uncluttered approach, while embarrassing, served other ends.

These characteristics were embodied in an Ugly American from the Midwest who served as an exchange professor at a Latin American university that I visited in connection with technical projects for which I had responsibility. The dean of the faculty was a distinguished educator. He and his party received us with the grace and elegance one comes to expect in such settings. After our two groups had settled around the table in the board room and undertaken the usual polite conversation that marks occasions of this sort, the door flew open and in swooped the faculty's exchange professor. Our hosts had on dark business suits; he wore a sports jacket with no tie. The rest of us had been formal, somewhat tense; he draped himself in a chair with one foot up on the table. We had been deferring to the dean to underscore his special status; the newcomer sat with his back to the dean and conversed only with the American visitors. He contradicted the dean in front of his subordinates without even turning to face him. He was rude, crude, and slovenly—the prototype of the Ugly American.

Only after I had told this story several times back in the States did I learn that this individual, who was

(Concluded on page 42)

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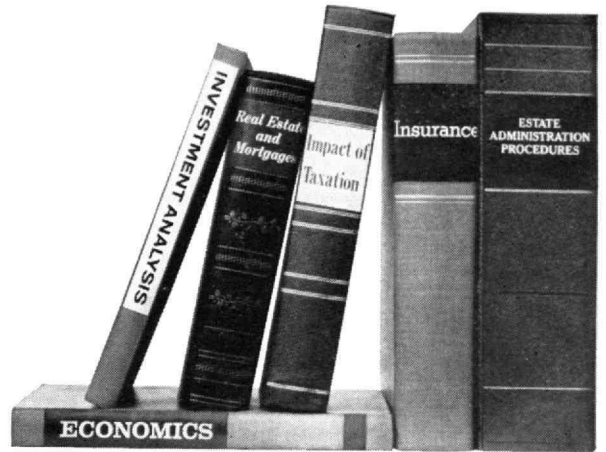
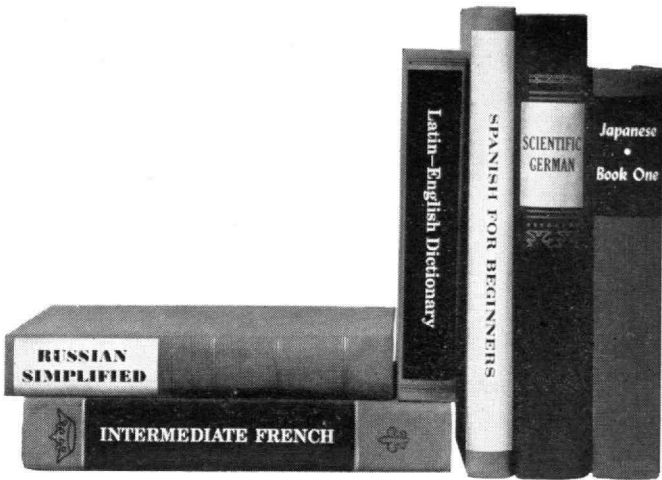
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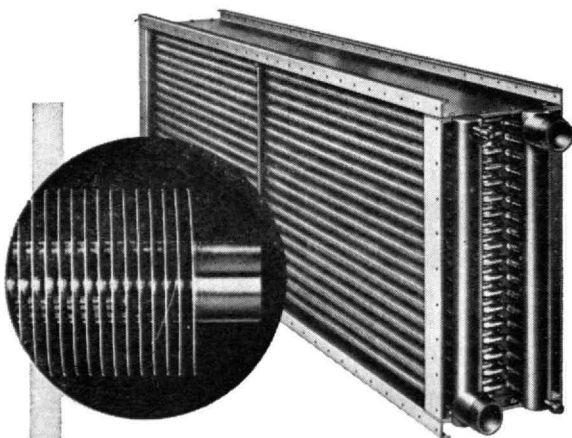
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Needed: More Ugly Americans

(Concluded from page 40)

breaking every ground rule of overseas behavior that we hold so dear, was impressively effective in his assignment—to the extent that his hosts had eagerly sought an extension of his assignment.

An even more powerful style of intervention achieves the ends of the Ugly American, but does so knowledgeably. Its practitioner understands the old order and the nature of the resistance it offers. He is prepared to accord it limited respect; he is also prepared to tread on local sensibilities when this is what is required. He is unfettered by the self-doubts current in his own tradition. He accepts the fact that his encounter with the host society inevitably must be a limited one. He is aware that his special expertise represents a needed resource in short supply. He is not about to see it squandered by misplaced sentiment.

Misplaced sentiment damages most the cause of the local associate's maturation for international professional service. This associate is entered upon the unsettling business of divesting himself of his traditional perspectives as a condition of achieving full technical potential, and traditional perspectives are not lightly surrendered. Our post-Ugly American is aware of these processes. He is also aware that firmness on his part may hasten the maturation process.

There is evidence that cross-cultural etiquette and the development of backward nations run at cross-purposes. Mission achievement requires that each partner make explicit the biases he brings to the encounter so that they may be identified rapidly and some bridging accommodation sought. Bias inventory-taking can be a rough and personally unnerving business. It is most effectively accomplished by candid and, at times, searing interchange between the two parties. Under such circumstances the temptation is to take shelter behind the politeness norms of the underdeveloped world on the one hand and the new U.S. norms against acting like Ugly Americans on the other. Both of these values are handy rationalizations by which the unpleasant elements of an international assignment may be avoided. The rate of accomplishment in assistance encounters between the more and the less developed societies may well be a function of the intensity of interpersonal conflict which the two parties to the encounter can countenance.

The time has come for us to forget the strictures of the novels and the articles that offer debilitating prescriptions to the tender-minded. We're big boys now and our counterparts in the underdeveloped world are rapidly getting to this stage. There is desperately needed work waiting to be done. To feature and yield to cultural differences is to discriminate, to patronize, and to hint at inferiorities which may be rendered fleeting and temporary if the professional, mission-oriented position is adopted. Both parties are subject to a past which, in many ways, is best forgotten. They are also committed to a future which is pleading to be born.



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Biology's Challenges

(Continued from page 31)

biophysicist, formulated about 100 years ago a resonance principle to account for man's ability to resolve complex sounds. This resolving power is based on certain features of the anatomy of the inner ear. The hearing losses that appeared to be caused by prolonged exposure to industrial noise seemed to violate certain aspects of the Helmholtz theory. The clash between the Helmholtz theory and these empirical findings made me curious: How much of man's hearing is a more or less direct consequence of mechanical events in his ear? How much depends upon the way in which the ear's output is handled by that part of the nervous system that is more particularly concerned with hearing?

This autobiographical story is told here for two reasons. One is to give an example of how engineering and the life sciences can blend. Another is to suggest how an engineer, who started out by measuring the distribution of power in the audible frequency range, may find himself involved in the study of biological mechanisms on which evolution has been at work for millions of years.

High Voltage Fish

My second engineering encounter with biological problems came two years later while I was working in the New York University Department of Physics on certain engineering aspects of a Van de Graaff high voltage generator. Surprisingly (at least to me), I found myself drawn into a research program on electric fish! For more than a century and a half, natural scientists have been fascinated by these creatures.

Since the specialized electric organs that the various species of electric fish possess are well adjusted to the environment in which each species lives, the study of each species needs to take into account their normal habitat. The team of physicists and biologists that I joined was studying electric eels that came from the fresh waters at the mouth of the Pará River in Brazil. There the eels grow to a length of six to eight feet; they are capable of delivering up to several hundred short (2 millisecond long) pulses of electricity per second; these pulses range as high

(Continued on page 46)



Bill Lowery—talent agent, music publisher and operator of a recording studio—discusses his new insurance program with New England Life representative Robert Evensen.

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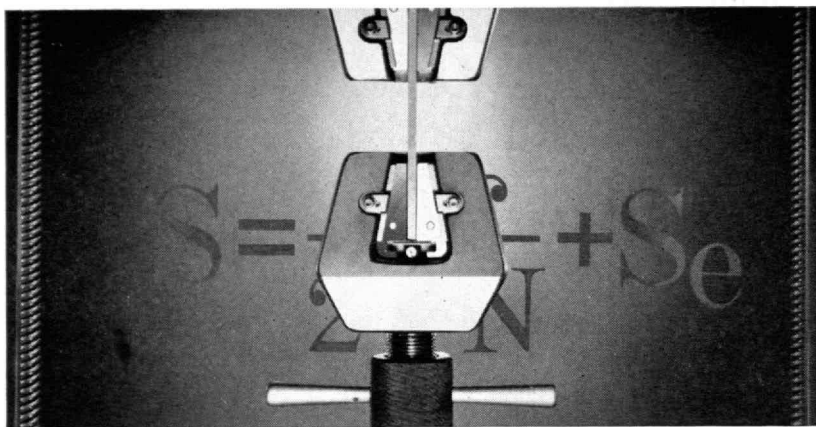
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Biology's Challenges

(Continued from page 44)

as 500-600 volts, and, at the peak of the discharge, current as high as $\frac{1}{3}$ ampere has been recorded.

My first task was to measure the speed at which these electric pulses travel along the eel's electric organ, which is several feet in length. With the aid of well-established engineering techniques, we found that this speed was about several thousand feet per second, a figure much greater than the speed with which the electrochemical changes called nerve impulses were known to travel. More thorough analysis then revealed that the apparent speed we had obtained (which had been done by dividing the distance the pulses travel by the travel time) was misleading. This engineering "error" had a biological reason, for eels apparently make use of a delay mechanism that prevents the front end of the electric organ from firing until the tail end is almost ready to do so. By insuring almost simultaneous firing of the entire organ, a more efficient mechanism of pulse delivery is provided than our initial, not very subtle calculations, had assumed.

Microvolts in the Brain

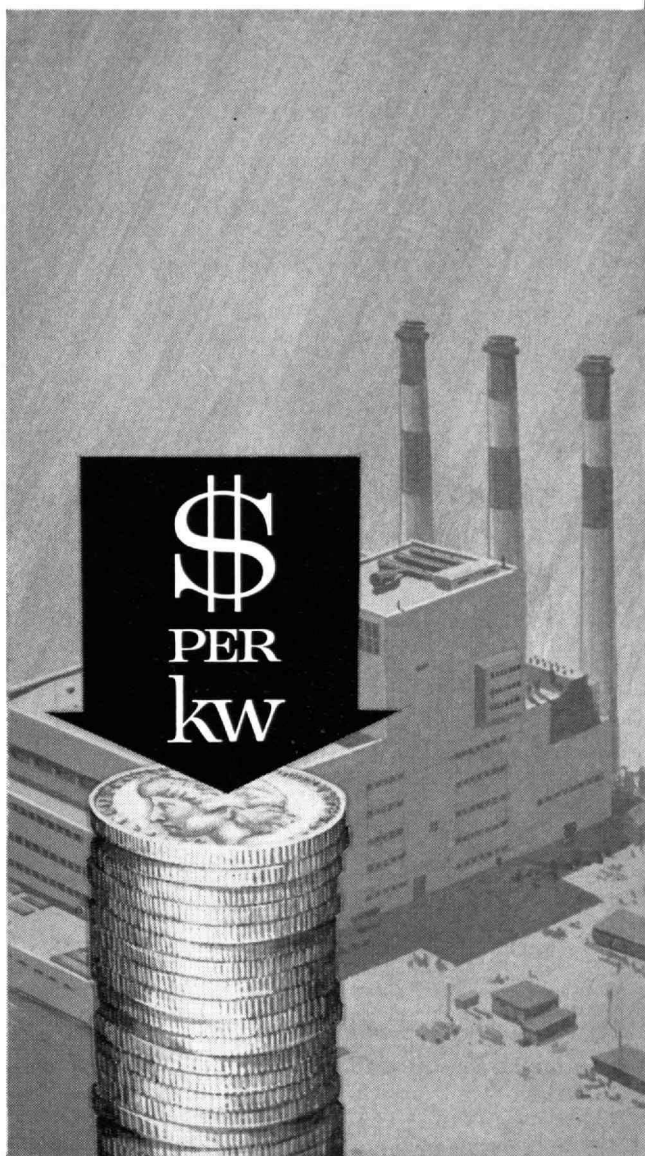
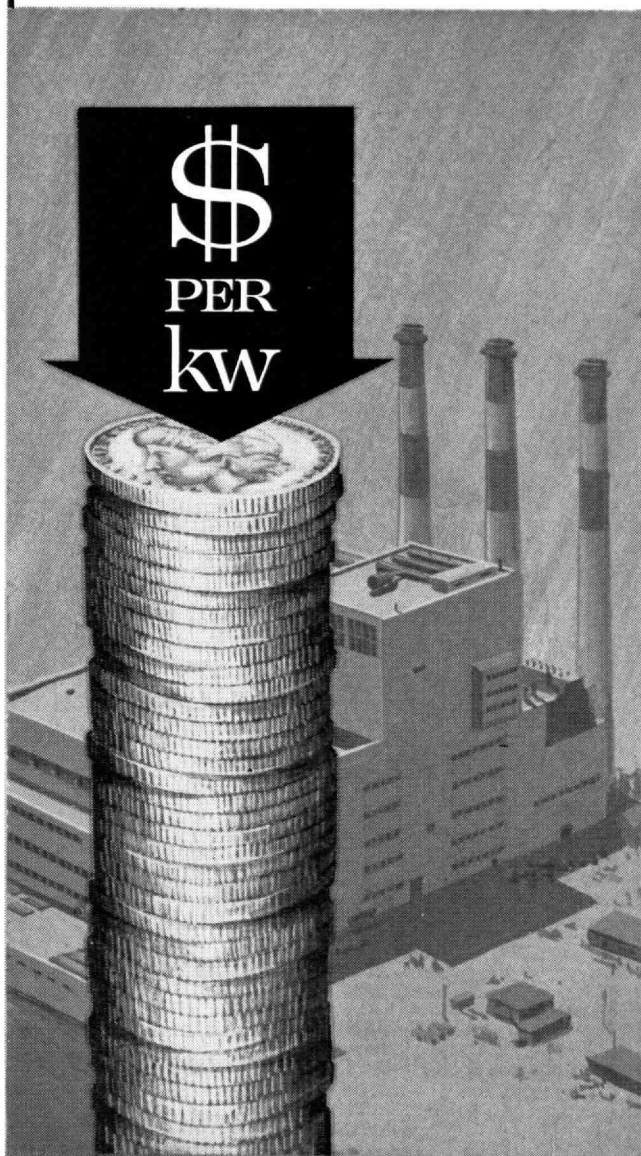
After this contact with what is probably the most potent source of biologically generated electricity on our globe, I next became interested in electrical events in the microvolt-range. My wife, then a student of psychology, dealt in her senior thesis with the following topic: How do changes in the electroencephalogram, popularly known as "brain waves," relate to changes in man's metabolism? As my wife told me about the experiments that had been done in order to relate biochemical and electrical variables, I became intrigued with the description and analysis of the electroencephalogram as a signal that changes from instant to instant and is, therefore, rather unpredictable. How was one to describe such a signal in mathematical terms? This set of problems has fascinated me ever since and I have worked on certain aspects of it since I came to M.I.T.

Considerable progress has been made in understanding the problems, but we are still far from having found adequate mathematical for-

(Concluded on page 48)



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Biology's Challenges

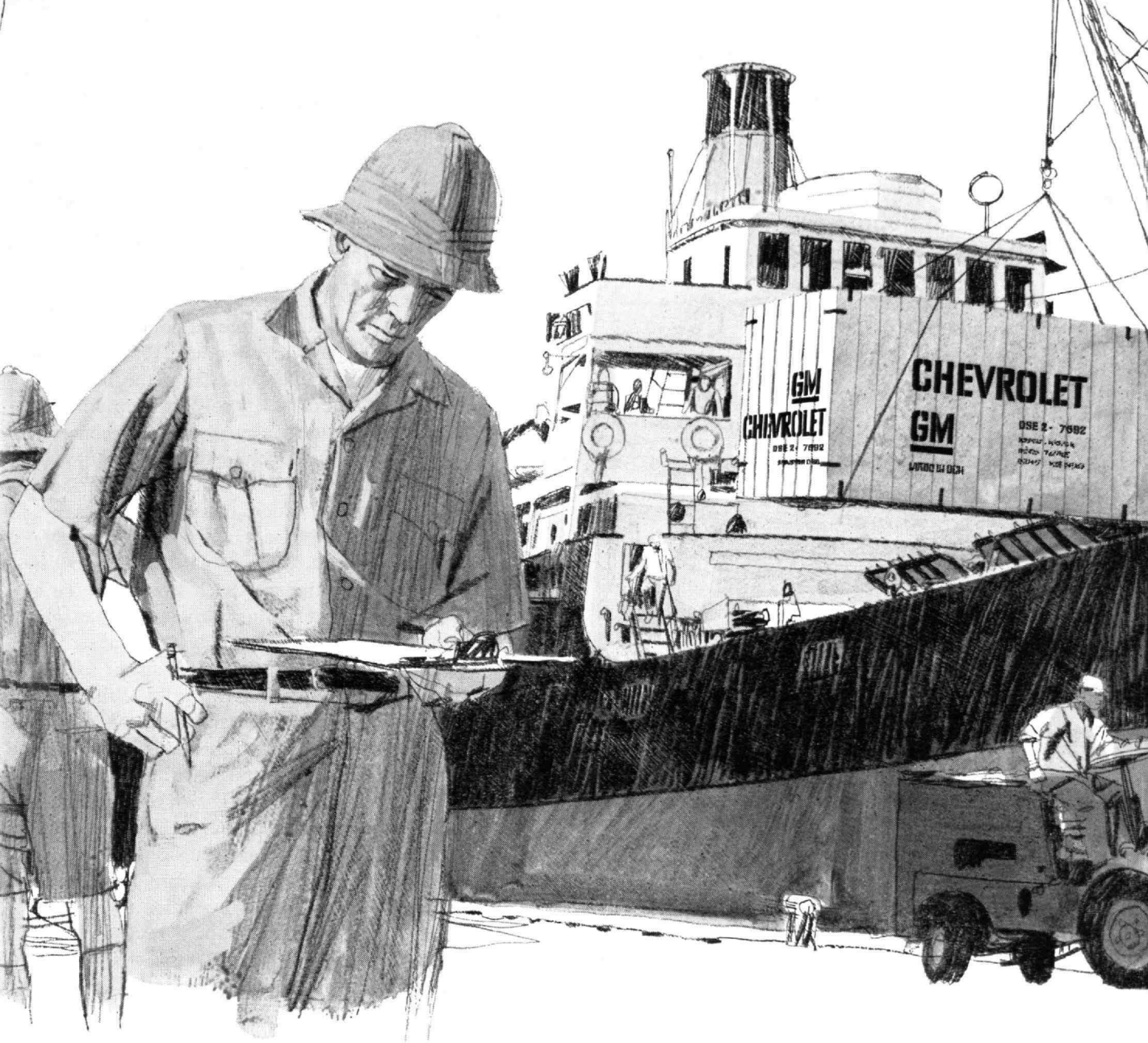
(Concluded from page 46)

ulations for even its most important characteristics. The human brain contains billions of neurons whose activity is at least in part symbolized by patterns of electrical events that vary both in time and space. In physics we have learned over the centuries to express in mathematical form the properties of a gas, or a fluid, or a piece of solid material; we do this in terms of the properties of the atoms and molecules that compose it. An adequate description of the brain as a collection of intricately organized and highly specific structures, capable of a multitude of communications and control functions, would require that we be able to derive the brain's overall properties from the properties and connections of the neurons that compose it.

It is clearly impossible to deal with this incredibly difficult job as a single problem. Instead, brain researchers have tried to tackle, both experimentally and theoretically, subtasks that were simple enough to give hope of making some progress. In recent years the availability of computers has added a most powerful instrument to these investigations. Indeed there are many who feel that without computers it would be practically hopeless to try to make mathematical models for, or to write mathematical descriptions of, even the simpler workings of the brain.

The above three examples represent only a minuscule sample of the many opportunities for contact with biomedical topics that engineers can find, or make, if they so desire. The opportunities range over the enormous expanse of the biological and social sciences, extending from service and support functions in medical practice to participation in basic research.

To become an engineer in this field, or in any other, and to remain a live one throughout one's career, require more than the acquisition of certain skills and a knowledge of the canons of engineering practice in any given field. The contemporary engineer can remain contemporary only if his initial understanding of the scientific fundamentals of the problems he deals with continues to be deepened by new learning that is related to advances in the relevant sciences.



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(Concluded from page 30)

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(I have taken the second of these examples from one of the author's earlier works because the example I would like to have used from the present book, his functional diagram of information flow in foreign policy decisions, would require a full page to reproduce.)

Another limitation of the book from the layman's point of view is its buckshot approach. The author is nothing if not wide-ranging; even theological concepts receive from his pen cybernetic redefinition. Thus *spirit* is "the set of second-order values that might describe a pattern of decisions by which first-order values are chosen," and *grace* is "information or events originating from outside [the system] as answers to [its] innermost problems of self-determination." Such sweep may be a virtue; in opening an entirely new domain of thought the best way may be to sketch rapidly (and hence impressionistically) the whole terrain. But again, for the layman at least, the method has its price. With only passing acquaintance with the terrain itself, the layman is at a loss to know whether the impressionistic map corresponds to it enough to be useful. At times the book reads as if the author had made a list of key cybernetic concepts and then asked himself what their closest political equivalents would look like if defined in their terms.

I hope that I have made it clear that the limitations of the book which I have noted are in relation to the general reader. It seems appropriate for a review in this journal to note these in view of the fact that few readers of Technology Review are political scientists. Considering the pressure of competing claims on the reading time of The Review's audience, I cannot urge that a large fraction of it should read this book. But all will want to be aware of the impact their profession—engineering, specifically communications engineering—is beginning to have on political thought. And all can join the reviewer in looking expectantly to Professor Deutsch's future book in which he promises to show us how a political theory built upon a cybernetics model would look.

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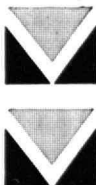
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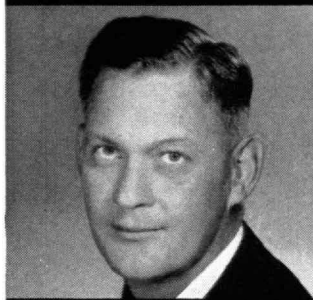
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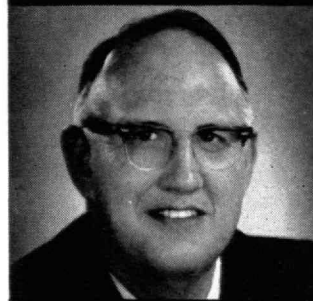
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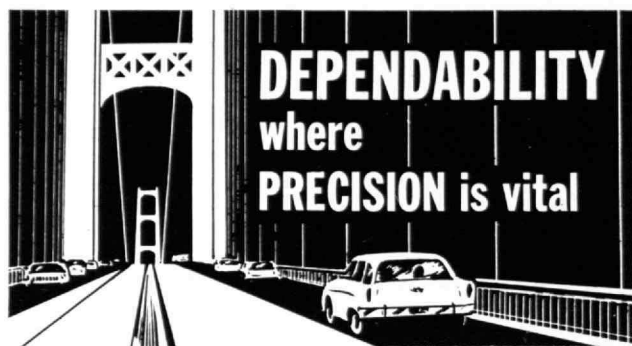
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Trend of Affairs

(Continued from page 27)

The Dentist's Duty?

A HUNDRED years ago Icelanders had no cavities in their teeth and no need for dentists. As a result of a change in diet they now have a dental school. Dr. Joseph F. Volker, of the University of Alabama, offered this reminder of nutrition's importance at a conference last March at M.I.T.

It is the dentist's responsibility to correct poor food habits and inadequate nutrition when they cause a great number of cavities, gingival disease, or other oral problems, Professor Nevin S. Scrimshaw of M.I.T. contended, but, alas, nutrition "has been taught so superficially and generally that . . . most dentists seem to feel that it is too difficult to change the patient's food habits and resign themselves to repairing the damage. Is this very different from failure to take a forceful stand on the diet of a patient with gastric ulcer and waiting until surgery becomes necessary?"

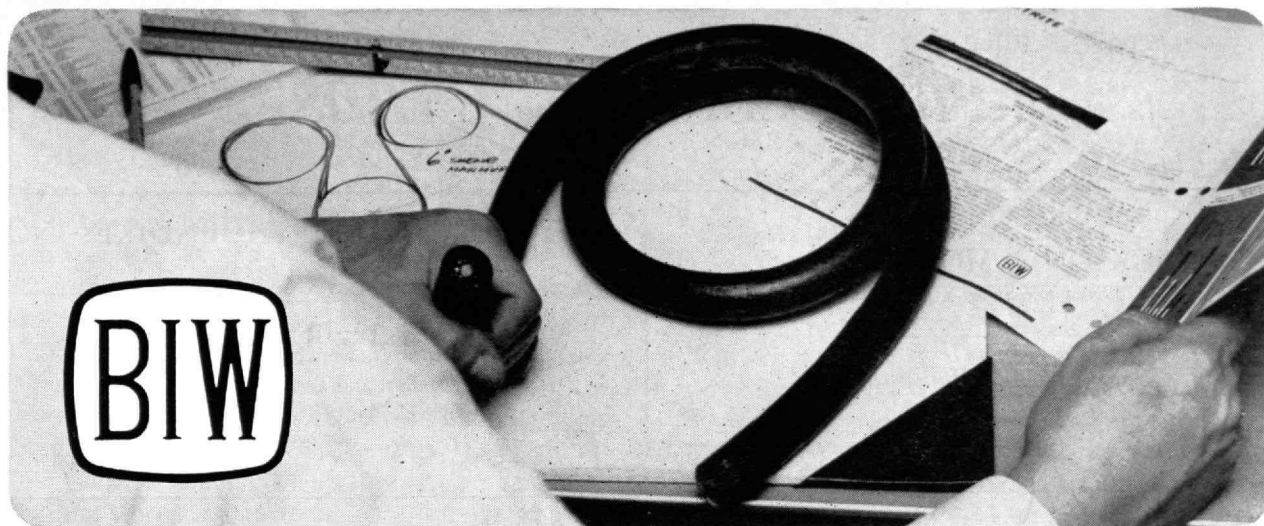
Professor Alfred E. Harper of M.I.T. joined Dr. Scrimshaw in urging that dental schools teach basic nutritional science, and cited the British building trades where "the apprenticeship system . . . led to a separation between the contractor who was concerned with the knowledge of the technique of building and the engineers and architects who were concerned with advancing the knowledge of building." This led to perpetuation of outmoded ideas and procedures, ". . . a problem more serious today than at any previous time because of the rate of scientific advance."

As an example of nutrition research applicable to dentistry, Associate Professor Bernard S. Gould, '32, of M.I.T. described studies revealing new aspects of the formation of collagen, the fibrous protein that forms the connective tissue in vertebrates and is important in healing of wounds. His experiments indicate that there are two types of collagen in the periodontal membrane that holds the teeth in place. Under certain conditions animals that are deprived of ascorbic acid (vitamin C) will continue to grow for many days, but they lose their teeth and their wounds heal poorly. When a wound occurs, neighboring tissues contribute ascorbic acid to the site of the injury. This information suggests, he said, that collagen necessary for healing requires more ascorbic acid than does the collagen of growth, and thus it might be useful to give supplements of ascorbic acid to patients with periodontal disease.

Educating patients on proper nutrition is better than tooth brushing for controlling cavities, Dr. Abraham E. Nizel, '51, of Tufts University advised. "I don't depend on brushing," he remarked.

Dr. Nizel was chairman of the conference, sponsored by the Tufts School of Dental Medicine and the M.I.T. Department of Nutrition and Food Science, and attended by representatives of 55 of the 57 dental schools in the U.S., Canada, and Puerto Rico.

(Concluded on page 55)



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Trend of Affairs

(Concluded from page 52)

M.I.T.'s Role Abroad

PRESIDENT Julius A. Stratton, '23, spoke of the international interests of M.I.T. at the 378th meeting of the Alumni Council, held in the Faculty Club on March 29. These interests, Dr. Stratton said, now include much teaching and research regarding international problems, and both educational and technical assistance to other countries, in addition to the education of foreign students in Cambridge.

He recalled the origins of the Center for International Studies and some of its achievements. He spoke, too, of the work of members of the Institute community in India, in Africa, and in Latin America. By admitting foreign students, he said, the Institute has been forced to bar some American students, but the number is small and the leverage gained by educating foreign students

The Culture Gap in Kakamega

HENRY HAMBURGER, '61, now teaches in a secondary school outside a remote city in Kenya. For The Review he has written a perceptive, sympathetic account of the tremendous cultural gap in which his students have found themselves. It will be featured in the June issue.

here is extraordinary. The percentage of graduate students from abroad is much higher than the percentage of undergraduates. Our educational system, he noted, has grown from roots in other countries, and it is fitting that we now give such assistance to them.

Philip H. Peters, '37, presided. Ralph H. Davis, '31, outlined the plans for Alumni Day on June 14, and T. Guy Spencer, Jr., '56, reported on the 1965 Alumni Fund's progress to date.

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Institute Yesteryears

As recalled by the late H. E. Lobdell, '17



25 Years Ago

ADMINISTRATIVE and Faculty changes made public in The Review for May, 1940, included:

Promotion of *Howard R. Bartlett*, a member of the Institute staff since 1929, to be Professor and Head of the Department of English and History;

Retirement of four professors whose "careers in teaching and research total 147 years, [namely] *James F. Norris* next January; and *William T. Hall*, '95, *Charles W. Berry*, '95, and *Harold K. Barrows*, '95, next June."

► *John R. Macomber*, '97, chairman of the board of the First Boston Corporation, was appointed to the Executive Committee of the Institute Corporation.

Marshall B. Dalton, '15, an Alumni Term Member of the Corporation, was elected to its Finance Committee. Mr. Dalton had served as the 44th President of the Alumni Association, in 1937-1938.

► Announcement was made of the naming of various rooms in Walker Memorial, viz.: the main hall for *Everett Morss*, '85, the 8th Treasurer of the Institute, from 1921 to 1933, and the 14th President of the Alumni Association, in 1906-1907; the so-called "North Hall" for *Henry S. Pritchett*, the Institute's 5th President, during 1900-1907; the lower west lounge for *Harry W. Tyler*, '84, former Head of the Department of Mathematics, and 5th Secretary of the Alumni Association, 1892-1897; and the lower east lounge for *Isaac W. Litchfield*, '85, the 4th editor of *Technology Review*, 1908-1917.

50 Years Ago

IN MAY, 1915, the third edition of the *Alumni Register*, then titled the "Register of Former Students," emerged from the printer's bindery. This volume of 536 pages listed a

total of 14,788 names, alphabetically from "Aaron, Joseph A., '11," to "Zuest, Adolph, '07," of whom 13,804 or 93.4 per cent, were recorded as living, and 984, or 6.6 per cent, as deceased.

Addresses were supplied for 11,608 or 84 per cent, of those living; and a geographical breakdown indicated that 11,058 were located in the United States or its territories and 550 abroad.

The 10 leading states were Massachusetts with 4,596; New York, 1,562; Pennsylvania, 582; Illinois, 496; California, 374; Connecticut, 274; Ohio, 255; New Jersey, 252; Rhode Island, 193; and New Hampshire, 156.

Similarly, the 10 leading foreign countries were Canada with 204; Mexico, 57; China, 39; United Kingdom, 35; Cuba, 30; Japan, 22; France, 17; Brazil, 15; Chile, 15; and Argentina, 10.

The theoretical population center of the Alumni resident in the continental United States was located at Lat. 41° 28' N. and Long. 78° 44' W., or approximately three miles north of Ridgway in Elk County, Pa.

75 Years Ago

"IT WOULD be a noble deed, in view of the examinations that will soon be upon us," wrote the editor of *The Tech*, "if some enterprising and public-spirited individual would collect and publish a series of examination papers in the more general subjects, especially of the first and second years. It has been noticed that, unconsciously as it were, examinations, like history, repeat themselves, and fortunately in a shorter cycle, so that if one were provided with the papers of five years on any subject he would have a comprehensive view of the snares and pitfalls that beset the traveller in that path of learning. Whether this observation be the truth or not, it is certain that a collection of old papers such as we have mentioned would be well

received, for none have been published in convenient form since the Class of '87 left the Institute. 'There's millions in it,' both for publisher and purchaser, if the thing is done before the annuals."

► The *Lounger*, in a philosophical mood despite the approach of the period of examinations, expressed himself in the columns of *The Tech* of May 1, 1890, to wit:

"Of all pleasant lounging-places, the *Lounger* knows of no pleasanter one than the Rogers Building steps on a sunny day. All types of students appear then when the air is still, and the sun is high in the south. Some stand in groups, others sit upon the window ledges on each side of the door, while still more stretch at full length on the warm granite balustrades.

"The hard-working Architect steals away from his drawing-board and Gothic arches to sun himself, and think longingly of his summer vacation. The Engineers talk in subdued terms of the coming exams, lay plans to fool the professors, and argue about the intrinsic value of different forms of cribs.

"Here comes '93 with a real naughty cigarette in his mouth, wondering if he doesn't look like a Soph. He does not; but with another year's close application to the various brands of 'coffin nails,' he will be real hard and tough, like '92 over there, who is bad, and knows he is, and, if anything, rather likes it.

"There is the annual congregation of Freshmen who stand and laugh at the occasional public initiates. The best one, in the recollection of the *Lounger*, was that of a student dressed as a cowboy, with spring-bottom pants, wide-brimmed *sombrero*, and red buttons profusely ornamenting his garments, who was condemned to coast down the granite steps on a board. After doing it several times successfully, he jumped too late at the bottom; and the jounce nearly unhooking his lower jaw, he smashed his toboggan in disgust.

"What wonderful recollections the steps bring up!"

97 Years Ago

IN MAY, 1868, 13 members of the Institute's first class were graduated.



'93

Cadwallader Washburn Night was held March 11, at Brunswick College, Brunswick, Ga. The program included a large exhibition of Washburn etchings and paintings, an illustrated lecture on the etching technique and a talk on "The Artist and his Work," by William Hendrix, well-known Georgia artist and director of the Glynn Art Association. Also, Mrs. Eugenia Babylon, college librarian, spoke on the adventurous aspects of Uncle Cad's (as he is affectionately known in Brunswick) life. A social hour was then enjoyed.

'95

Today, March 12, I had the pleasure of talking by telephone with **Charles W. Berry** who lives at 1088 Massachusetts Avenue, Lexington, Mass. He is about like "yours truly," that is, able to get about the house and grounds, but not doing much beyond that until the real spring and summer weather arrives. We note this here because Charlie is quite a bit ahead of us and will be 93 next May 21. So here's to Charlie with our best wishes for a very Happy Birthday. . . . If any of you readers note this, we will be pleased to hear from you by telephone or mail.—**Andrew D. Fuller**, Secretary, 120 Tremont Street, Boston, Mass.

'96

Alumni Day is Monday, June 14. We are looking forward to this meeting on the Cambridge campus. Hope to see you there.

Walter O. Pennell, in appreciating the greetings of the class, writes, "I can hardly realize I am as old as 90 years. However, I have much to be thankful for. I am in good shape and play golf when weather and grounds permit. I was a member of the state legislature for two terms and have been active in town affairs. My first wife, by whom I had three children, died some years ago and after I retired I married an Exeter girl and am blessed with two daughters, Betty and Martha; they keep me young and are very good for me." . . . Perhaps there are some in the class who are golf enthusiasts like Walter. Buy a Ken Smith No. 4 wood because the No. 3 wood does not give enough lift to the ball. Maybe a midiron and mashee are still all the lofting clubs with wooden handles. We still

keep them in case we start again in the spring.—**James M. Driscoll**, Secretary, 129 Walnut Street, Brookline, Mass.

'97

No one has come forward to help in gathering news of the class, although 10 of the remaining 19 of class receive The Review and if they can read (I hope better than I) they should be aware of my need. My feeble attempt is to apply the English absorbed under the influence of "Tabby" Rogers to their letters, but not to apply his advice to youth: "To progress in business, marry the daughter of the boss." . . . A few questions since no member has shown interest in tiddley-winks: How many are going to Mexico at the invitation of the M.I.T. Club in that country? You should see "Popo," Orizaba, and few other hills above 1,500 feet. How many find the income tax "simplified" as processed by the administration? Is the new House of Representatives office building at \$85,000,000 as large as Jimmy Hoffa's Teamster office building? . . . Enough spilled ink for the May issue.—**George R. Wadleigh**, Acting Secretary, 70 Flower Avenue, Hastings-on-Hudson, N.Y.

'98

Here it is May and Alumni Day just around the corner. Let's look forward to seeing many of us under the tent where we can again renew old acquaintances. . . . We have not been in touch for a long time with **Fred L. Hayden**, a Course X classmate, and so it was good to receive, on February 25, a newsclip from the Braintree (Mass.) Sunday News, dated December 20, 1964, and telling of Fred's interest in the Braintree Historical Society. We quote from the clipping "Historical Club Gets Old Clock.—A Washington Street resident has presented the Braintree Historical Society with a grandfather clock going on 200 years old. The clock which dates from the early 1800's, was among a group of gifts presented to the Society by Fred L. Hayden of 1881 Washington Street, South Braintree. Mr. Hayden, a chemist and an M.I.T. '98 alumnus, also presented Thayer Academy with materials and supplies from his own laboratory as well as chairs, tables and glassware. His other gifts to the Historical Society included a mounted button collection. The result of a lifetime hobby, this collection contains several thousand buttons. He has also given the Society an early Hepplewhite

Happy Birthday

In May one alumnus will celebrate his 95th birthday; six alumni will be 90 years old; seven will mark their 85th birthdays; and twelve will blow out 80 candles.

May, 1870—**ARTHUR W. PIERCE**, '91, on the 1st.

May, 1875—**ALVAN L. DAVIS**, '98, on the 11th; **ARCHIBALD L. KLIEVES**, '01, on the 19th; **ALFRED W. LOMBARD**, '99, on the 23rd; **ALFRED P. SLOAN, JR.**, '95, on the 23rd; **EVERETT N. CURTIS**, '98, on the 24th; **ROBERT L. DENISON**, '98, on the 28th;

May, 1880—**WILLIAM C. ARSEM**, '01, on the 1st; **HENRY H. SAYLOR**, '02, on the 5th; **M. ALVAH ZOOK**, '10, on the 10th; **ARTHUR S. GIBBS**, '03, on the 13th; **JAMES B. NOBLE**, '10, on the 14th; **JAMES M. GAYLORD**, '07, on the 15th; **GRANT S. TAYLOR**, '02, on the 22nd.

May, 1885—**WILLIAM J. WALSH**, '06, on the 1st; **MRS. JAMES A. BECK**, '07, on the 6th; **E. STANLEY WIRES**, '07, on the 9th; **GEORGE W. CRAIGIE**, '10, on the 12th; **EDWARD E. BENNETT**, '07, on the 14th; **HOWARD H. DOLE**, '09, on the 17th; **STANLEY F. NELSON**, '08, on the 19th; **RALPH J. BATCHELDER**, '08, on the 21st; **CARL T. POMEROY**, '10 on the 22nd; **EDWARD J. COLGAN**, '09, on the 28th; **ROBERT V. ZAHNER**, '09, on the 29th; **MAC H. MCCRADY**, '09, on the 30th.

card table, a woman's dress of the late 19th Century period, some early period books and publications and some chinaware." . . . To date (March 3 when these notes are written for the May issue of the Review) eight replies have been received in answer to our questionnaire postal cards mailed to 34 members of our class. Two replies, one from the executor of **Edmund C. Little's** estate and one from **Albion W. Shaw**, were included in the April class notes. Four more replies were received in January and we will include them in these May notes in the order they were received.

A reply from **Miriam C. Waring** (Mrs. D. Porter Waring) of 1080 Sherman Street, Apartment 412, Denver, Colo. 80203, dated January 20, writing for her father **Howard B. Collins**, our course III classmate, tells us: "My father, Howard B. Collins, has asked me to answer your postal card of January 16. After spending many years in metal and uranium mining, he now is living in Grand Junction, Colo., at 2425 Teller Avenue. He still maintains my address in Denver for all of his mail." . . . **Alvan L. Davis** of 25 Concord Street, Waterbury 10, Conn., writes under date of January 20: "I'll be 90 next spring (May 11, 1965), so am less energetic than of yore. Mountain climbing ceased four years ago and car driving last year. Keep house all by myself and do my own cooking and cleaning. Enjoy a tiny open fire by day and get good rest each night. Get in a few bridge tournaments and do a little work in my shop, split some firewood and shovel a bit of snow. Also grow a few vegetables during the summer. Life still is good to me and

I love our New England climate and its superb scenery. Give my warm regards to those who still recall me." Am sure, Al, very, very many of the class recall you and congratulate you with others who now are or soon will be a nonagenarian. Al, as mentioned in the class notes of last June, 1964, has a hobby of concocting homemade charades. He enclosed with his letter another one which he calls an edible enigma, as follows: Cut off my head and singular I act. Cut off my tail and plural I appear. Cut off both and 'tis a ponderous fact; My middle stays, yet there's nothing here. . . . Al did not tell us the answer. Can any of you solve it? Perhaps in his next letter he will enclose one of his home-made crossword puzzles. Go ahead Al, and we'll see what the class news editor can do with it.

A reply from **Fred C. Plumer** of Loudon Road, Pittsfield, N.H., 03263, a Course V classmate, dated January 25, reads: "For the record, I was graduated from Newburyport High School in 1894. After retiring as a Boston representative for the Christian Science Monitor, I moved to Pittsfield, N.H., where I am living with my daughter and her husband on a 100-acre farm where we raise and freeze the major part of our fruit and vegetables. Have just put an Angus steer that we raised ourselves into our locker and which will provide us with beef for the coming year. As a hobby, I enjoy reading worthwhile books and keeping posted on current events. I would appreciate any class notes." The class has not been in touch with Fred for a long time and it was good to hear from him. . . . **Bob Lacy** of 201 Tunbridge Road, Baltimore 12, Md., a Course I classmate, writes under date of January 25: "My oldest friends have nearly all passed on and I begin to feel like 'the last leaf upon the tree in the spring' so let us all look forward and send a dollar, or a dollar a year, to be put in a savings bank and paid with interest to the first of us to reach 98 years. If none of us makes it, the account to go to the Alumni Association." Bob sent a dollar to the class secretary which he will hold temporarily. Please write in your ideas as to Bob's suggestion. Your opinions, pro or con, will be appreciated. Thanks, Bob, your mind is as active as ever; we'll see what other members of the class have to say.

Our President, **Ed Chapin**, has been dismissed by his doctor from the nursing home in Marblehead and is now, since February, back at the Hotel Eliot. He says he is much better but feels he should keep rather quiet for a few more weeks. —**Frederic A. Jones**, Secretary, 286 Chestnut Hill Avenue, Brighton, Mass. 02135; **Edward S. Chapin**, President, Hotel Eliot, 370 Commonwealth Avenue, Boston, Mass. 02115.

'00

The March, 1965, issue of Technology Review carried a notice of the death on May 8, 1964 of **Francis C. Lincoln**. He was one of the most noted members of

the Class of 1900. His career included both professional work in mining and metallurgy and teaching in the same field. After graduation from Course III at M.I.T. he engaged in mining and metallurgy at Ames, Colo. This was followed by teaching at the New Mexico School of Mines and by superintendency of the Ruby Gold and Copper Company in Senora, Mexico. He then studied at Columbia University, becoming a Fellow in Geology. This was followed by a period as consulting mining engineer in New York. After that he drifted west again, first to the University of Illinois and then to LaPaz, Bolivia, as resident engineer of the Bolivian Dev. and Esp. Company. He then became director of the School of Mines at the University of Nevada in Reno. While there, he was state ore sampler for Nevada. In 1923, he went to the South Dakota State School of Mines as professor of Mining where he remained until his retirement in 1947. During this time he had many connections with outside interests. Among these were manager of the Northwest Quarry Company near Rapid City; head of a research council to search for deposits of beryllium; examining engineer for the Black Hills region of South Dakota National Resources Commission; and state inspector of mines with offices at Lead. He was author of many papers and articles on geology, mining, and metallurgy in A.I.M. and M.E.; Economic Geology, Engineering and Mining Journal, and Pit and Quarry. In 1949 he moved to Chula Vista, Calif., where he lived until his death.—**Elbert G. Allen**, Secretary, 11 Richfield Road, West Newton, Mass.

'01

I have a note from **Alonzo Isham, II**, in Seattle, Wash., saying that the date of his birth on the M.I.T. records was wrong. It should be August 11, 1877 instead of 1878. He has his birth certificate to prove it. I hope this will be corrected. . . . **S. W. St. Clair, IV**, of Ojai, Calif., has sent me the following: "Four years ago I retired after 58 years of service with Sturgis Association, Architects, of Boston. Starting with the organization in 1904 as draughtsman, I worked up through all departments as engineer, estimator, superintendent of construction, general manager, and retired after 10 years as President of the Corporation in 1962. It was the oldest architectural organization in the country. Founded in 1854 by John H. Sturgis, it operated continuously until the present time, building all kinds of structures from Labrador to Miami and from Boston to Manilla, P.I. A few samples of the office work are the Federal Reserve Bank in Boston, the old art museum that stood in Copley Square when we were students at M.I.T., the marble wings of the Massachusetts State House, the Perkins Institute for the Blind, the Episcopal Cathedral at Manilla, and many others. For a long time I thought architecture was one of the most

important things. Now that I am living quietly among the mountains in California, I begin to realize there are many more marvelous subjects to see and think about as the world continues to roll on." —**Theodore H. Taft**, Secretary, Box 124, Jaffrey, N. H.

'02

J. W. Ballard's son has furnished us with the following clippings concerning his father: "Joseph William Ballard, 85, President and Treasurer of the Griswold Manufacturing Company, in 1932, and resident manager of the Kendall Company at Colrain until his retirement in 1936, died yesterday, (January 19), at Franklin County Public Hospital. He was a trustee of the Franklin Savings Institution and F.C.P.H., serving as treasurer for six years and as president four years. He was born in Circleville, Ohio, in August, 1879, son of William W. Ballard and Myra (Griswold) Ballard. He was educated in Circleville elementary schools, graduated from Arms Academy in the Class of 1897 and received a degree in mechanical engineering from Massachusetts Institute of Technology. He entered the Griswoldville Manufacturing Company employ in 1902 and held various positions until 1932, when he was elected president and treasurer. After the company was sold to the Kendall corporation he served as resident manager for the three Colrain plants. He married Mary Ellen Whelpley of Washington, D.C., in 1904. They lived in Griswoldville until 1918, when they moved to Greenfield to make their home at 35 Highland Avenue. He was a member of Second Congregational Church. Survivors include his widow; two sons, Dr. William W. Ballard of Norwich, Vt., and Joseph W. Ballard, Jr., of 687 Bernards-ton Road; two daughters, Mrs. Donald D. Benson of South Hadley and Mrs. Knight W. McMahan of Great Falls, Va., and 10 grandchildren."

The esteem in which Ballard was held by his fellow townsmen is expressed in this tribute which appeared in the local paper. "Death on Tuesday of Joseph W. Ballard of Greenfield took from the local scene a man who represented the best of Franklin County's tradition of good citizenship. As an employer he was understanding and humane. As president of Franklin County Public Hospital he applied his business acumen and his thoughtfulness for others in the area's service. As a citizen of our county he set an example of industry, common sense and kindness that can well be followed by all generations to come. Those of us who knew Mr. Ballard in each of his roles regarded him respectfully and affectionately. Particularly noteworthy was his cooperative approach and his humility. His association with any civic endeavor was proof of its worth and a long step toward its success. In his quiet and unassuming manner, he accomplished much more than the more dynamic and spectacular leaders of the region. Mr.

Ballard proved among many other things, the worth of the senior citizen. Most of his years of retirement from business were devoted to the service of others. He employed his wisdom and his experience to set a high standard of leadership for Greenfield and Franklin County. But most important of all, Mr. Ballard was a good man whose qualities were recognized in spite of his personal modesty. He taught us all a lesson in the importance of character to the making of a full life. For this his old friends will thank him and remember him all the days of their lives."

Our classmate, **Samuel C. Lind**, met death by drowning in the Clinch River below the Norris Dam, Oak Ridge, Tenn., on February 12, 1965. It seems that he was an ardent fisherman and had on that day gone to a favorite spot down the river to try for trout. The ford across the river was shallow at the time of his going but on the return the current was very swift and rising as the turbines at the dam had been turned on. It is presumed that he tried to wade back to shore and either fell or was knocked down by the current. Upon his failure to return home a search was initiated and the next day, the water having been turned off at the dam, his body was recovered about a mile down stream. Lind was a native of Tennessee having been born at McMinnville in 1879. He was graduated from Washington and Lee University with a B.A. degree and then entered M.I.T. and received an S.B. degree in 1902. He remained at the Institute for two years as an assistant in the chemistry department and then studied for two at Leipzig as fellow from M.I.T., earning a Ph.D. degree. He returned to become an instructor in General and

Physical Chemistry at the University of Michigan. In July, 1916, Lind joined the U.S. Bureau of Mines, Golden, Colo., as "chemist in radioactivity." He became chief chemist of the Bureau of Mines in July, 1923, but left two years later to become associate director of the Fixed Nitrogen Research Laboratory, Washington, D.C. He returned to teaching in 1926 when he joined the faculty of the University of Minnesota as director of the school of chemistry and professor of chemistry. Later when the Institute of Technology, which included the college of engineering and architecture, and the school of chemistry, was founded in 1925 he became its dean. He remained at Minnesota until July 1, 1947 at which time he retired having reached the retirement age of 68. It should have been noted that while at the University of Michigan, Lind took a year leave of absence and spent it pursuing studies and making investigations of radioactivity in the Laboratory of Madame Curie in Paris, and in the Institut fur Radiumforschung in Vienna. A short time after his retirement from teaching Lind became consultant to the Carbide and Carbon Chemical Company at Oak Ridge, Tenn., and served in a similar capacity with the Oak Ridge National Laboratory for the last 10 years.

Samuel Lind was a member of many scientific societies and had been honored by several with high office. He had headed the American Chemical Society and had received the Nichols award from the New York Section. "His special fields of interest were: chemical kinetics of gas reactions; chemical effects of radiation and electrical discharges in gases; photochemistry; relations of gaseous ionization to chemical reactions." Your sec-

retary will not attempt to enlarge upon this statement which is quoted from "American Men of Science." Lind is survived by his wife and son. . . . A note received by **Dan Patch** from Mrs. Raymond D. Atchley, Los Angeles, gives information that her father, **Ralph P. Gifford**, died July 30, 1964, after having been ill for several years. Gifford was from Lynn, and was graduated from electrical engineering, V.I. He entered the employ of Stone and Webster and was with them for about three years. He then became assistant superintendent of Houghton County Electric Light Company, Calumet, Mich. Later he returned east to enter the employment of the General Electric Company and still later was self-employed in the electrical business. Upon his retirement he moved to California to be with his daughter.

Harlen Chapman writes as follows to Pat: "Thank you very much for your letter and bringing back memories of our baseball days. Your sense of humor still remains with you and you were always one of the peppiest players. Those were good old days but I almost flunked out in my sophomore year and my junior year was a real grind to make up for previous years. In spite of all your physical difficulties your writing does not show it. Maine in winter would be too much for me to tackle and this winter has been an unusually severe one from reports in the papers. Too bad you could not have some of Florida's warmth and sunshine, so you could take a walk with real pleasure. From personal experience and from people I have known I really think that Florida gives added years to one's life span. Also we are fortunate in coming to Winter Park. It is an unusually friendly city and in spite of its growth since we arrived in 1952 it still remains the same. Rollins College is a splendid asset as it keeps an intimate relationship with the city. Winter Park is a New England project of over 100 years ago and still retains much of its original charm. By the way, M.I.T. varsity crew had a race a week ago with Rollins crew on Lake Maitland. M.I.T. won by one-and-a-half lengths. A week before that Wisconsin varsity beat Rollins by only six feet on the same course. On account of Helen's heart condition she has to give up golf and all athletic activities. I gave up golf at the same time as there were too many things to do. Also we don't drive very far now and if we do travel it is by plane. In spite of restrictions we do get a lot of living down here and many old friends from the north drop in to see us when they are down this way. After all that you have done for other people and your splendid work for M.I.T. you should have fond memories of what you have accomplished."—**Burton G. Philbrick**, Secretary, 18 Ocean Avenue, Salem, Mass.

Deceased

GEORGE W. HAMBLET, '88, March 24
JOSEPH W. BALLARD, '02, January 19*
RALPH P. GIFFORD, '02, July 30*
SAMUEL C. LIND, '02, February 12*
GEORGE C. CAPELLE, '03, March*
HENRY J. FITZLER, '03, January 11*
CLIFTON CRULL, '04*
DAVID BLOOM, '06, February 7*
JAMES S. MACGREGOR, '06, February 14*
ALFRED A. BROOKS, '07, December 23*
WHEATON I. GRIFFIN, '07, February 21*
JOHN MATHER, '07, February 21*
JAMES C. HAMMOND, '09, February 16*
RICHARD S. BICKNELL, '10*
A. J. FREEDMAN, '12, January 16*
FRANK J. OSBORNE, '12, January 23*
JOHN R. PARK, '12, December 31*
ROY G. BROWN, '15
MERVIN S. HART, '15, December 4
EDWIN E. MERRILL, '15
ALBERT WALTER, '15, February 27
STUART J. HAYES, '19, December*
REGINALD S. HUNT, '19, January 22*
ROSS H. HYSOM, '19, February 10*
WILLARD B. RIDDELL, '20*
GERALD A. COUNTS, '21, July 30
BRUCE F. ROGERS, '21, March 9
JOHN H. DONNELLY, '22, September 12, 1963

ARTHUR PEW, JR., '22*
GORDON H. SEABURY, '22, February 20
CHARLES STARBUCK, JR., '22*
JAMES CLAPP, '23, February*
HERBERT F. LORING, '24, February 8*
DOUGLAS E. MCWILLIAMS, '24, December 6
GARIBALDI A. BARBERI, '25, July*
THOMAS A. HAYES, '25*
GASTON R. LAURION, '25, November 14*
WILLIAM H. REED, '27*
ROBERT BRUCE WATSON, '27, February 7*
NEWELL HAMILTON, '28, February 5*
BURTON T. ELLIS, '33, December 20
EDWARD BARBER, '35, January 28*
JOHN FORD, '38, August 29*
SAMUEL RUDFINSKY, '38, May 26, 1963
HARRY B. DODGE, '40*
MRS. HELEN T. COHEN, '49, January 17, 1963*
ANDRE P. VIRET, '49, July 16
MORRIS LEVIN, '52*
FRANK A. STAPLES, JR., '52, February 6, 1964
ROBERT J. CAR, '53, February 22, 1964
WILLIAM A. NAVIPOUR, '58, August 29
MICHAEL M. EDELSTEIN, '58

*Further information in Class Notes

'03

In recently reading the notes of another class in The Review, my interest was keenly aroused by the most kindly

gift of a classmate's records to his secretary and eventually to our alumni archives. This fact should be available to our classmates also, who may overlook much data that could be lost and would be of future value in the records. . . . The present clamor in the press and the problem of much concern to all educational institutions today, that of the evaluation of the seemingly retarded student, is not of recent origin. A scholarly article in our M.I.T. Review of March, 1925, states: "There is a certain cruelty in the ruthless stamping of a boy who has great ambitions, or whose parents have built shining hopes of his future, as unfit in the degree implied by a declaration that his abilities are inferior to those of some of his classmates, but it is a cruelty which can only be postponed, not averted. It is a cruelty inherent in life itself. Even if inequalities of attainment can be disguised during the years of school and college, they are quick to come to light with entry into the business or professional world and it is far better for the strong, the weak and the general community of which the students form a part, that the dividing line between the weak and the strong should be drawn at a very early age; that the rate of progress may be suitably adjusted. The school should form a microcosm of the world outside and a reasonable degree of competition among students has a distinct value as preparation for the very keen competition which they must meet everywhere outside of the academic walls. It may, of course, be objected that high attainments in school are not prophetic of kindred success in later life. The theory that the two things have nothing in common is often advanced, and it gives great comfort to the college undergraduate disinclined to labor sufficient to land him anywhere in the upper section of his class. The tail boy, or last in his class, often went to the top after he left school and made the usage of ranking look ridiculous. There have been many investigations of the correlation between scholastic rank and business and professional success, and all that have come to the writer's attention have agreed in establishing a connection strikingly close."

Our distinguished track man at M.I.T. is vividly recalled with the sudden passing of **George C. Capelle, XIII**, as noted in the Cambridge Press of March 4, 1965. He was 83 years old and had a notable record in World War I, as a member of the 101st Engineering Corps, Yankee Division. Later he entered the engineering field in association with our classmate, **Bill McMenimen**, while the latter supervised gigantic constructions around New York State. On George's retirement he was very active in American Legion affairs, being past commander of the 10th district. He was the husband of the late Grace E. Neckett and leaves two sons: George, Jr., of South Portland, Maine, and Professor Russell B., of Northfield University, Vt. He was buried in Cambridge Cemetery with full military honors.

Henry J. Fitzler, XIII, passed away on January 11, 1965, at age 85, from his home at 9 Highland Road, Tiverton, R.I.

He died at Catholic Memorial Home in Fall River. He was born in New York City, son of the late Ferdinand and Honora (Callhan) Fitzler, but had lived in Tiverton since childhood. He was graduated from Durfee High School in Fall River with the class of 1898 and was graduated from M.I.T. in 1903 with a degree in naval architecture. He was employed for almost 40 years by the Standard Oil Company of New York. During that time he served as chief engineer aboard several tankers and assisted in building several others. Mr. Fitzler was a member of St. Christopher parish and a member of the Holy Name Society of that parish. He is survived by a sister, Miss Wilhelmina Fitzler with whom he lived, and a brother Ferdinand H., of Fall River. His funeral was held with a solemn requiem Mass in St. Christopher's Church and burial in St. Patrick's Cemetery, Fall River. . . . Our birthday greetings are generous this time, with **George R. Gaenslen, III**, of Texas for his 90th on March 28; and for their 85th: **Andrew H. Hepburn, IX**, of Boston, on March 6, and **John E. Trull, I**, on March 29 at Woburn, Mass.—**John J. A. Nolan**, Secretary, 13 Linden Avenue, Somerville, Mass.; **Augustus H. Eustis**, Treasurer, 131 State Street, Boston, Mass.

'04

Your class secretary had a routine test at the hospital and was informed that his blood count needed a booster. This means a couple of days in the hospital. Nothing serious we hope. . . . **Frank Davis** and wife have deserted Detroit for the sunshine of Florida. . . . A nice card from **George Kaiser** indicates he and family are doing well. . . . Our vice-president and class agent, **Gus Bouscaren** has had a fall which fractured his hip. You have our sympathy Gus. . . . We learned from Gus of the death of our classmate **Clifton Crull**, Course IV, Newton, N.J. He was formerly a resident of Cedar Rapids where he was active in church work but later moved to Blairstown, N.J. His family has our sympathy.—**Carle R. Hayward**, Secretary, 120 Beacon Street, Boston, Mass.; **Eugene H. Russell, Jr.**, Treasurer, 82 Stevens Road, Needham, Mass.

'05

By now you should have received formal announcement of our 60th Reunion, together with a questionnaire requesting full information as to your intent. This, then, is supposed to be a pointed reminder. If you haven't sent in yours, do it now. In the possibility that you have not received your announcement, here are the important details: Check in at the Charter House Motel, 5 Cambridge Parkway, Cambridge, before 5 P.M., Saturday, June 12. We have made reservations for Saturday and Sunday nights. On Saturday night there will be a cocktail hour

from 5:30 to 7:00 P.M. at McCormick Hall, with class dinner there at 7:00 P.M. On Sunday there will be a choice of two bus tours with dinner at the Faculty Club at 7:00 P.M. All other meals are ad lib. Then on Monday join in the regular Alumni Day program. . . . These notes are being written at the summer home of **Willard E. Simpson, I**, at Boerne, Texas, where we are enjoying two months of spring weather and avoiding the disagreeable mud-time of northern New Hampshire. Willard seems to be improving and is looking forward to Alumni Day in June and touring northern New Hampshire and Vermont with us afterwards. . . . We learned that Lawrence U. Fuller's new address is Jesmond Nursing Home at Nahant, Mass. I shall try to determine what this means.—**Fred W. Goldthwait**, Secretary, Box 32, Center Sandwich, N.H.; **Gilbert S. Tower**, Assistant Secretary, 35 N. Main Street, Cohasset, Mass.

'06

Along in March as I prepare these notes, the papers, radio and TV are overflowing with the Selma, Ala., tragedy and the wave of picket lines, sit-ins, and other demonstrations across the country. It is interesting to speculate on what will happen between now and May—whether the Federal government will have the will and the way to enforce the Constitution and the law. . . . Betty and **Stew Coey, VI**, have indirectly provided some news for they have moved from the Glen Ridge home of these many years, as predicted in the March notes. A change of address has come through the Alumni Office for the new place in Wilmington, Vt., but you will have to inquire at P.O. Box 457 just where to find them. . . . Five of the last 10 checks the treasurer has received for class dues came from Portland, Ore., one of them recently from **Bob Cushman, II**, who had no special news to report, other than that their spring flowers were in bloom (early March) notably crocus and daffodils. . . . **Sam Greeley, XI**, we hear, has a collection of 115 plays about Abe Lincoln and he was invited by the Cosmos Club of Washington, D.C., to tell about it at a meeting of the club on April 12. He and Mrs. Greeley expected to be at the Jokake Inn in Phoenix in March. . . . Because of his acute nose for news a fellow secretary has furnished some that I might otherwise have missed. **Fred Goldthwait, '05**, now lives in Center Sandwich, N.H., and in The News published in Meredith, he spotted and sent to me the obituary of **James Stanislaus Macgregor, II**, who died in the Laconia Hospital on February 14, at the age of 83. He was born in Beaufort, S.C., and was a graduate in 1900 of the New Mexico Agriculture and Mining College (now I believe it is the New Mexico State University at University Park). He was at Tech only during our junior year, in Course II, his home address being Melissa Park, N.M. Of the four entries on my file card—addresses only—two are **Melissa Park**,

1913 and 1915, when I believe he was a teacher at his alma mater. In May, 1920, his address was Pelham Manor, N.Y., when he was for a number of years an associate professor of mechanical engineering at Columbia. "During WWI he was in charge of testing materials for the Army Air Corps and later was associated with N.Y. Trust Company heading its industrial department for 24 years. He resigned in 1942 to become chief of the Miscellaneous Metals Division of the W.P.B., and retired to his New Hampshire home in 1945." He is survived by three sons, two daughters, two step-sons and a step-daughter.

With sorrow we report the passing of another classmate—**David Bloom, V, S.B.**, on February 7, 1965. Mrs. Bloom reported to the Alumni Office and also wrote me a very helpful letter, including some information about his career and enclosing a check for the Alumni Fund in his memory. I promptly telephoned to Mrs. Bloom to express the sympathy of the class and to thank her and their children for the contribution in his memory. She told me how much David had enjoyed our 50th and how proud he had been to wear cap and gown and sit with the class at those graduation exercises for the Class of '56, the luncheon, etc. They have two sons and a married daughter—one of the sons is **Alfred H., M.I.T., '50, S.B.**, and thereby hangs a tale. He started at B.U. and after 18 months in the service told his dad he was going to his school. David allowed he couldn't make it, M.I.T. being a lot tougher and more selective than in our day but Alfred reminded him that he had been on the Dean's list and was sure he'd make it—he sure did. David Bloom was born August 10, 1885, in Boston; prepared at English High; was a member of the Chess Club and the Chemical Society. His thesis was "A Rapid Method for the Determination of Vanillin in Vanilla Extract." After graduation he served as chemist in several locations: with International Paper Company at Glens Falls; the S. S. White Manufacturing Company at Prince Bay, N.Y., and then with the Massachusetts Department of Health in Boston. From 1920 until he retired in 1950, David was connected with several shoe and leather firms in Boston as credit manager. He is survived by Mrs. Anna (Aronson) Bloom, two sons and a daughter, and seven grandchildren. A Masonic service was held at the Levine Chapel in Brookline.

Nary a word from Florida for months but a member of the class was in Alabama in March. **Sherm Chase, XI**, was in Mobile for a week attending a monthly meeting of the American Institute of Consulting Engineers. He has been chairman of their committee on professional practice and ethics and was there to lead a panel discussion, with two others, of two papers on those subjects. Soon after his return Marion and I were guests of Bertha and Sherm at their home in Auburndale and after a spell for catching up, we enjoyed the high tea that Bertha served. Sherman has a thousand, more or less, slides taken through the years and showed us some, beginning with the All-

Technology Reunion at Nantasket in 1916, then our reunions and Alumni Day groups. Many Happy Memories. I brought home and hope to read soon, a copy of Sherm's paper "Education for Sanitary Engineers" that he presented at a Symposia on Public Health Education of the P.H. Engineering Research Institute and the P.H. Engineering Division of the Institution of Engineers, at Nagpur, India, in October, 1963. Alumni Day is Monday June 14. Who, I wonder, will join the regulars on campus?—**Edward B. Rowe**, Secretary-Treasurer, 11 Cushing Road, Wellesley Hills, Mass. 02181.

'07

I have had over a 50 per cent return of the reply cards that I sent out to the entire class roster, seeking information concerning a reunion this coming June. This is better than average, and I appreciate the promptness of the men in sending in their replies—also a few added bits of news on their cards. Several of the men made the comment, "too old to travel." The cards enabled me to correct several addresses; and I also obtained many zip numbers which, if used, do help in prompt mail delivery. . . . **Seymour Egan** has returned to his home in Wakefield, after visiting for five months with his daughter and her family in Jersey City. . . . **Bill Otis** expects to return from Florida to his home at Chatham on Cape Cod by June. . . . **Andrew Rebori** has a home address at 6 East Scott Street, Chicago 10, Ill. Please so note on your class mailing list.

In the April notes I spoke of the serious physical condition of **John Mather, VI**. The Boston Herald of February 22, 1965, contained a lengthy notice of his death. He died in the Barnstable County Hospital at Pocasset on Saturday, February 20. Private services and committal will be held at Arlington National Cemetery sometime in March. John was a native of Lowell and obtained his early education in the Lowell schools. He joined the Coast Artillery Company in 1908 and, during World War I, served 16 months overseas in France as a heavy artillery officer on General Pershing's staff. In 1920, he was assigned to the Ordnance Department and later served in the office of the Assistant Secretary of War, working in procurement planning. He later served as a production manager at various manufacturing arsenals. In November, 1941, he assumed command of the Watertown Arsenal, remaining there through World War II. During his administration, the arsenal underwent extensive renovation in which its shops were retooled and modernized. The peak employment under his command reached 10,000. Because of the high production in various weapons produced there, the Arsenal received five Army-Navy awards for high achievement and merit. John retired after World War II with the grade of brigadier general, having completed 38 years of active military service. He

moved to Cotuit on Cape Cod in 1946. He was a 32d degree Mason and received his 50 year masonic pin from the Mariners' Lodge in Cotuit. He is survived by Mrs. Mather and a married son and a married daughter.

A letter from Mrs. Olive A. Brooks contained the news of the death of our classmate, **Alfred A. Brooks, II**, on December 23, 1964, due to a heart attack at Anchorage, Alaska. I wrote to Mrs. Brooks, and she sent me various obituary notices from which I gathered the following: Al was born in Cambridge, Mass., and obtained his early education in the schools at Medford, Mass. He went to Wellsville, N.Y., in 1922 and worked at Kerr Turbine. In 1926 he became associated with Moore Turbine as a Thermodynamic Engineer and remained with them when the firm became the Worthington Pump and Machinery Company. He retired on May 1, 1954, and moved to Anchorage, Alaska. Here, he worked for the past 10 years as a mechanical engineer for the Chugach Electric Association. Funeral services and burial were at Wellsville, N.Y. Survivors include his wife; a son, Dr. Alfred A. Brooks, Jr., of Oak Ridge, Tenn.; a daughter, Mrs. Henry J. Mitchell, of Cleveland, Ohio; and four grandchildren. . . . A note from his daughter told of the death of **Wheaton I. Griffin, I**, on February 21, 1964, after a very long illness. Wheaton received his early education in Utica, N. Y. He was a member of the Class of 1907, M.I.T., for four years and then attended a fifth year. He then became associated with his father's grocery firm which had been founded in 1844. In 1923, the 79th anniversary of the founding of the firm, Wheaton and his brother Charles, Jr., became partners with their father. The business was sold in 1957, at which time Wheaton retired. He was a noted community leader. He served as a director and vice-president of the Utica Fire Insurance Company, was a director, since its inception, of the Utica Blue Cross hospital plan, a member of the Advisory Board of the Women's Christian Association, a member of the Faxon Hospital Board of Managers, and a past director of the Utica Chamber of Commerce. He was a trustee of the Utica Savings Bank and for more than 40 years, an elder of the First Presbyterian Church. Besides his wife, he leaves a married daughter and one son. Burial was in Forest Hill Cemetery, Utica. Since I found out, several years ago, that Wheaton and I had common church and bank interests, I have written to him several times and always received an interesting reply.

Some of the men will recall that Wheaton attended our 45th Reunion in 1952. While he leaves no record of great engineering feats accomplished, he did, through active service and much hard work, make the City of Utica a better place for his fellow man to live both civically and religiously. I have written the family in behalf of the class. . . . If each class member has kept the 1962 printed list of class members up to date, he will have a very much marked up piece of paper. Your secretary is considering issuing a new list as of July 1, 1965. Do you

think I should do this? Send me a postcard if you do. If I receive enough favorable replies, the printed page will be forthcoming, containing also the zip numbers I have accumulated.—**Philip B. Walker**, Secretary and Treasurer, 18 Summit Street, Whitinsville, Mass.; **Gardner S. Gould**, Assistant Secretary, 409 Highland Street, Newtonville, Mass.

'08

The second dinner meeting of the 1964-1965 season will be held Wednesday, May 5, at the M.I.T. Faculty Club, 50 Memorial Drive, at 6 P.M. Hope you will be with us. . . . I am sorry to report the death of **William Grimes** at his home in Guanajuato, Mexico, on January 2, 1965. . . . **Howard Luther** of Cincinnati, Ohio, has been appointed class estate secretary for the Class of 1908.—**H. Lester Carter**, Secretary, 14 Roslyn Road, Waban 68, Mass.; **Joseph Wattles**, Treasurer, 26 Bullard Road, Weston 93, Mass.

'09

Both **John Davis** and your secretary received a picture postcard of Buenos Aires from **Tom Desmond** on which was written the following: "This postal card was purchased by me in Buenos Aires, Argentina, but will be mailed to you from Cape Town, South Africa. Alice and I are on a cruise of the S.S. Brasil not scheduled to return to New York City until March 25. In the catalogue of the public library at Rio De Janeiro, while looking for (and finding) a listing of works by Alice Curtis Desmond, I found also a listing of Dawes' Electrical Engineering books. Cordial best wishes." . . . Margaret Davis received two cards from Mrs. **Barbara Pepper**—One from Tucson saying that they have been traveling a week in Mexico, in Guaymas on the Gulf of California, and then Alamos, an old mining town. The other tells of the inspiring mountains they saw on their way to the Apache trail. They visited Phoenix and San Diego, then Los Angeles. They found the weather much colder than usual. They left Newton about January 20. . . . **Howard W. Congdon**, 21 Whitcomb Avenue, Hingham, broke his arm when he fell in February. His wife Ruth is taking care of him. His son John, '57, is also living with him. . . . We received a note from Mrs. **John R.** (Elizabeth M.) **Park** stating that her husband passed away suddenly with a coronary on December 1, at Portsmouth, N.H. We wrote to Mrs. Park expressing the sympathy of the class as well as our own. She replied: "Thank you and the Massachusetts Institute of Technology, Class of 1909, for your kind words of sympathy." She enclosed a clipping from the Portsmouth Herald which gave a brief history of John's career. He was born in Winchester, Mass., in 1889. He attended

the Institute and graduated from Dartmouth in 1912. He first joined Hornblower and Weeks and later headed the J. R. Park Company, distributors of chemicals, until his retirement in 1955. He was an artillery man in World War I, a member of the Winchester Legion Post and a communicant and usher at St. John's Episcopal Church. He is survived by his widow, a sister, Mrs. Howell Shepherd, a brother, Kenneth B., and several nieces and nephews. His hobby was geology with research and field work in mining.

We received a notice from the Alumni Office of the death of **Louis Barnett**, VI, late in 1964 in New York. He prepared for the Institute at Mechanics Arts High School and was a member of the Electrical Engineering Society. Our records show only that he lived in New York all his life. . . . We also received a notice of the death of **James C. Hammond**, III, on February 16, at Little Neck, Ipswich, Mass. At the Institute he was a member of the Mining Engineering Society and completed his thesis with **Francis Soderstrom**. Our records show only that he lived in West Roxbury until 1956 when he moved to Little Neck. We have written to his widow.—**Chester L. Dawes**, Secretary, Harvard University, Cambridge 38, Mass.; Assistant Secretaries: **George E. Wallis**, Wenham, Mass.; **Francis M. Loud**, 351 Commercial Street, Weymouth 88, Mass.

'11

Obie Clark forwarded a letter he received from **Dippy Allen**. Dippy and his wife May spent the winter at a rest home but are now back at St. Leonards Creek in Lusby, Md. He lost the use of his right arm as the result of a stroke. Except for that he reports to be in "fair shape." Dippy forwarded a long letter he had received from **Harry Alexander** with whom he had exchanged biographies. Harry wrote he was "with Goodyear until 1917 when I got the offer of a first lieutenantcy in the Air Service and was given command of the 92nd Aero-Squadron. Two weeks later we were on the water. We were on night bombing and I served with my squadron until August, 1918. I was sent back to England, after having flown once too often, advanced to captain in charge of training of the some 20,000 air mechanics at that base. After the war I was with a French company until the French franc dropped to about six cents. Then I went back to Goodyear. **B. Darrow** and I formed a company—experimental laboratory—which we ran until WW II, when B. was given charge of research for Firestone and I was given the job of director of research for Keystone View Company of Meadville. I retired at 65 although I helped them along for a year or so afterward." . . . **Sallie Denison** writes: "I received a nice note from Grace and **Harry Tisdale** written by Harry who said that Grace has improved quite a lot during the last year and can frequently be up in a wheel chair. He

said that the winter has been very mild and the temperature in the 80's. He also mentioned that he was glad they lived far enough away from the new bridge and causeway from the south end of the island to the mainland at Bonita Springs, which will be finished in a few months, so they won't be bothered by the traffic noises."

As I read Harry Alexander's references to his WWI service I was surprised to find we had some things in common. Both of us were offered commissions because our names were given the War Department by the Technology Clubs Association Washington office. Harry reported to Kelly Field, Texas, and was assigned to command the 92nd Squadron. I reported at the same field a few days later to take the 109th squadron without knowing he was in the same service. We both were promoted on a long overdue Special Order #234 to captain along with a long list of other officers, the best known of which today is Eddie Rickenbacker.—**John A. Herlihy**, Treasurer and Acting Secretary, 588 Riverside Avenue, Medford, Mass. 02155.

'12

Word has just been received of the death of **John R. Park** at his home in Portsmouth, N.H., on December 31, 1964. John was with us part way through M.I.T. and then left to finish up at Dartmouth. . . . **Frank J. Osborne** passed away at his home in E. Orange, N.J., on January 23, 1965. Frank was long associated with public health and made many important contributions to improved living in New Jersey during his interesting lifetime. . . . **A. J. (Buck) Freedman** passed away January 16, 1965, at his home 359 Maple Street, New Bedford, Mass. Buck had been in the shoe business ever since leaving the Institute and was president of the A. Freedman and Sons Company, Brockton, Mass. Besides owning and operating the shoe manufacturing business founded by his father he was an artist whose works were displayed at the Boston Arts Festival. He retired from business a year ago. He was a founder of the Young Men's Hebrew Association in New Bedford where he coached and played basketball. As I remember it he was our star basketball man at the Institute.

A good letter from **David J. Guy**, 3224 Morrison Street, N.W. Washington, D.C., tells of his regaining his health after a very severe illness. His doctor feels he has made a remarkable recovery and can do most everything except not too much of any one thing. At the present time he is working on some natural resource conservation problems for the year 2000, as he says, only 35 years away. His advice to other senior citizens is to set your sights well ahead, in fact out of reach of the "pressure boys." In this way one becomes a philosophical engineer which is a restful occupation.—**Frederick J. Shep-**

ard, Jr., Secretary, 31 Chestnut Street, Boston 9, Mass.; **John Noyes**, Assistant Secretary, 3326 Shorecrest Drive, Dallas 36, Texas.

'13

Life on a reunion committee is never peaceful. Our secretary received a phone call 10 days ago from Azel Mack, Secretary and Chairman of the 50th Reunion of the Class of 1915. He informed us that the Class of 1915 had made final arrangements to celebrate at the New Coonamessett Inn from June 11 through June 14. This caused considerable confusion as the inn is not large enough to house two class reunions. It appears that 1915 started negotiations with Mrs. Harris as early as October, 1963, while our first letter was mailed January 10, 1965. Following two telephone conversations with Mrs. Harris which proved that her office thought that the inn was dealing with the same class, we withdrew in favor of 1915. Our committee has definitely decided to hold the reunion on the Cape in June. At present we have tentatively secured accommodations at three locations. Your committee will visit these sites and within a very few weeks all members of the Class of 1913 will be informed of our selection and given detailed information. . . . While we are discussing reunions, David W. Skinner, President of the Class of 1923, has asked us to share the facilities at the Oyster Harbors Club in 1968, which the management has reserved for us. He was informed that this could be decided at a class meeting during our reunion in June, and this seemed to be agreeable to him. . . . We have received a considerable amount of literature on 1915's reunion from Azel Mack. This information includes a 50th Reunion brochure which is beautifully edited and actually a combined history and detailed reunion program as well as a statistical report of names and addresses of present members of the class and a listing of those members now departed. Congratulations to you, 1915, on your 50th, from 1913.

Once again we have been notified of another good '13er who has gone to his Maker. **John Turner** formerly **John Waite** of Course II passed away January 29, 1965. We regret not having known him better and we would be pleased to publish more details of his life. . . . The Alumni Association has moved from Building 1 to a new office in the Administrative Facilities Building (formerly the Daggett Building) at Ames and Main Street, E19-430, on the fourth floor. The mail address remains 77 Massachusetts Avenue, Cambridge, Mass. 02139. . . . It was noted from the Boston Herald of March 3, 1965, that **Gardner Alden** was re-elected to the Public Library Board of Framingham, Mass. . . . Our loyal friend and classmate, **Bill Mattson**, again comes through with interesting news of his and Jo's activities for 1964. Jo is a director and chairman of the auxiliary board of the Denver Society for Crippled

Children and Adults. Bill had been re-elected for a second term as chairman of the Jefferson County Red Cross Chapter. He states that his chapter just completed a new building designed for their particular needs. Bill says: "This is worthy activity and keeps me from being bored in my years of retirement." Bill is also a member of the Jefferson County Central Republican Committee of Colorado. After several months of hard work, they elected most of their local public officials. What about the national candidates? Following the election Bill and Jo went to Los Angeles, visiting friends and sight-seeing. On November 13 (his lucky number) they sailed on the S.S. Lusitan (Matson) to Honolulu for a month's trip, where they visited many of the Hawaiian islands and did what all tourists do. While in the 50th State Bill, with the assistance of 100 alumni Kappa Sigmas, held a banquet at the Reef Hotel and formed a Hawaiian Alumni Kappa Sigma chapter. He returned to the mainland in the middle of December and remained in San Francisco for two weeks, including Christmas, to celebrate the holidays with his daughter, Janet. He and Jo returned by train, but due to the fall floods in California had to detour through the mountains arriving in Denver five and one-half hours late. So the Mattsons are now back home. It is always refreshing to hear from Bill and although he and his wife cannot be with us this June, we shall expect to see them in 1968. If the Capens are ever able to disentangle themselves from their vacations, they will take advantage of the very inviting hospitality of the Mattsons.

The Institute has established a new secretarial post to be known as the Institute Estate Secretary. This officer is D. Hugh Darden. The Alumni Association has appointed a representative for each class. We have been notified that **Gene Macdonald** has been appointed as Class Estate Secretary for the Class of 1913, and he has accepted the position. . . . **Lester Gustin** writes from sunny Florida. It is always a pleasure to hear from Gus. He states that he and Ethel will be at the reunion in June. He forwarded this year's dues together with some extra to make up for the years he did not pay them. We have no record of any lapses but Lester has always given bountifully of both his time and his money. We quote: "I note that we are holding our reunion this year at the Coonamessett Inn. I have many pleasant memories of the last year we were there and was hoping you would pick it for this year, as Oyster Harbors was not available." We are sorry to disappoint you, Les, and probably several others, but at the moment we are considering the original Coonamessett inn, the Clausen Inn, under the management of a nationally controlled hotel association. It has been highly recommended to us. . . . **Lindsley Hall**, out Oregon way, indicates on the dues bill: "I do not expect to attend the 52nd Reunion of the Class of 1913 on the Cape." . . . The Capen family has hit the social trail lately. On February 26 we attended a cocktail party at the M.I.T. Faculty Club sponsored by the Pratt Institute, of Brooklyn N.Y. Later that even-

ing we enjoyed a basketball game between M.I.T. and Pratt which Tech won. On March 5 we had the pleasure of attending the 75th anniversary of the founding of Beta Nu Chapter of the Delta Tau Delta fraternity at the Chapter House as well as the Eastern Conference D.T.D. banquet at the Hotel Somerset. Both events were very enjoyable. We renewed old and made new friendships. Among the invited guests at the Chapter House was none other than a good Phi Gam and now president of the Class of 1915, Marshall Dalton. . . . Last week we visited with several loyal Tech men of the Boston M.I.T. Club at the Oyster House. Among those we greeted were: H. Leston Carter, Secretary, '08; **Charles Thompson**, our president; Paul Blampied, '24, District Manager of Johns-Mansville; Parke D. Appel, President, '22; Gordon Gott, '35; Walter B. Parker, Jr., '39; Paul E. Weamer, '49, who is on the Board of Directors of the Boston M.I.T. Club. Why don't you '13ers in the vicinity join us at the club each month? The programs are really worthwhile. . . . **Frederic T. Morse** has left the land of smog and now resides at the Broadview Hotel, Glendale, Calif. . . . Have you read the March issue of the Review? Page 26—that's our latest project. . . . Lest we forget: M.I.T. Class of 1913, 52nd Reunion, somewhere on the cape, June 11-14, 1965. And the 14th is Alumni Day.—**George Philip Capen**, Secretary and Treasurer, 60 Everett Street, Canton, Mass.

'14

J. Warren Horton recently received the Pioneers of Underwater Acoustics medal awarded by the Acoustical Society of America. This was largely for his work carried on for many years at the U.S. Navy Underwater Sound Laboratory at New London, Conn., where he was chief consultant. His earlier experiences included a brief session as instructor in physics at M.I.T., as well as short periods as a member of the staff of General Radio Company and the Bell Telephone Laboratories. . . . There are some classmates who exude news most all the time. One of these is, of course, **Alden Waitt**, the sage of San Antonio. The following clipped from the arts review section of the San Antonio Light for January 10, 1965, tells the story better than we can: "Invincible Summer" by Glenn Tucker. "'Artists are always young'—Margaret Fuller Ossoli. The above quotation is not to imply that today's profile-en-art, Major General Alden H. Waitt, is older than Grandma Moses (he isn't). It's a good quote for one thing—romantically and esthetically true—and more than any other phrase that I could find, sums up this remarkable transplanted Texan's relationship to painting. He dropped in last week to chat about his one-man show, 'The Four Seasons,' which opens today at the Men of Art Guild Galleries, and about everyone is excited—the good general in particular.

But he had a lot of other things to say too—things about San Antonio, youth, 'the winter years of life,' neighbors, Texas, bluebonnets, other artists and his latest works. On San Antonio: 'I've never regretted retiring here. San Antonio is a beautiful, friendly and fortunate place.' On youth: 'Too many young people, you know, think it's unsophisticated to tell what they feel in their hearts. Me? I'm not embarrassed to express an emotion. The most important thing you can give to your work is love—priceless love. I try, in my paintings, to tell Texans how beautiful their state is.' On age: 'Two weeks ago, my minister made a statement in a sermon that really hit at my heart. It was from Camus: Here in middle of winter, I feel within an invincible summer. At least, that's a pretty good paraphrase of it.' On neighbors: 'You know, I've always been a creature of impulse. I came through San Antonio in 1952, on my way to Mexico, and stopped to visit a friend, Brigadier General Morris Miller. He asked me, Why not stay? but I didn't pay much attention to it. Within three days, I bought a house two doors from him, moved in, and have been happy there ever since.' On Texas: 'Of course, New England, where I come from, is beautiful, but Texas has really done something for me. I love Texas.' On bluebonnets: 'You know, I was really afraid to paint my first bluebonnet. There are so many paintings of bluebonnets, and so many of them that are bad.' On artists: 'I guess I owe my interest—and indeed, much of my talent to the late Ada Robinson and Cecil Casebier. I took a course in art appreciation at Trinity under Ada, who later persuaded me to take a class in drawing and painting. Cecil and some other artists at the San Antonio Art Institute influenced, encouraged and even inspired me.' General Waitt is sort of the Robert Frost of San Antonio. He finds a graceful, even lyrical beauty in the rugged landscape around him. Where Frost used words, the general commits his images faithfully and honestly to the canvas. He believes in and champions the Individual Man and practices the almost obsolete qualities of thrift, resourcefulness and industry—qualities that no doubt stem from his long and distinguished military career. General Waitt is one of those late-comers to painting. Before he retired in 1949 as chief of the U.S. Army Chemical Corps, the only brush he knew anything about was the kind that put that high military gloss on his brogans. Canvas meant a bivouac tent. Oil was found only in crankcases. Watercolor was something you screamed Gas! at and easel was just Stengelese for do it gently. The general hung up his two stars in 1949 but didn't go out to pasture and gaze at them. He enrolled in the art appreciation course in 1955, and this was the turning point. 'My first painting was pretty terrible, so I want to forget that. A little later I made my first sale—a panorama of old Fort Davis—and I think it was pretty terrible too.' Since his specialty is landscapes (and he is unquestionably one of the best we have), the general does all of his work out of doors. He tries for two canvases a month, but

there's no sweat if it doesn't reach that. 'After all,' he said, 'there's bad weather at times.' You're going to be richly impressed by the 30-odd paintings in the M.O.A.G. show. All of them were completed in less than two years, and they comprise General Waitt's most important showcase to date. Be sure to notice three of them: Christmas 1964, Winter Solstice, and November Scene. 'These are my latest paintings,' he said, 'and they satisfy me the most.' In your heart you know he's right, and his pictures, judging by a few photographs we have seen, are really pretty good.

We have not had word about **Raymond D. MacCart** lately and we hope he will not object to recording the letter which he wrote to our assistant secretary not long ago on February 15: "Dear Chat: Things have come to a pretty pass when I have to pay money to get a letter from you. Regardless, I'm happy to have heard from you and that you and your family are well and happy. I regret missing the reunion and seeing all hands but I was confronted with a hernia operation and couldn't make it. Your letter reached me in Florida. V. and I have been spending part or all of the winter down here for a number of years, living in various parts of the state trying to determine where to finally hole in so to speak. Three years ago we decided upon Pompano Beach where we have a co-op apartment on the waterway about three blocks from the ocean. This year we arrived just before Christmas and expect to stay through most of April. I have been semi-retired for five or six years and became fully retired last year. Prior to retiring and realizing it was eventually inevitable, also realizing I had no hobbies except work, I decided I would make a study of the stock market, investing, etc., mainly because all I needed was pencil, paper, an eraser, a slide rule, and a newspaper, all of which I had at hand. My objective was to have a hobby which would require that I remain mentally alert, also a hobby which would not restrict my movements from place to place. I find that my choice of hobbies has filled the bill and keeps me very busy. I also find that in Florida, in particular, I have plenty of company and that many other retired execs have the same hobby. It's particularly interesting for non-athletes. With a daughter in school I can see that Florida is not for you in the near future. Even so I'll give you my address and invite you to drop in if you are down this way. If I get near you I'll make it a point to see you. Virginia and I send our best to you three. Sincerely, Ray D. MacCart, Harbor Home 506, Pompano Beach, Florida."

Not long ago we reported that **Hibbard Busby** had retired and settled in Brevard, N.C. Now we have a clipping from the Transylvania Times of February 6, 1965, which shows how instinctively active our profession makes us: "The Teen Center will be open for members two afternoons each week beginning February 8, with the hours being 3:30 to 5:00 P.M. Except for the library which is on the second floor, activities will be confined to the ground floor game room.

Monday afternoon will be for girls only, and Thursday afternoon will be for boys. H. S. Busby, who came here with his wife following retirement as a consulting engineer, will be in charge. He spent much of his career as a civilian employee of the U.S. government, and served several years as a college instructor. He enjoys working with young people and is looking forward to serving in this capacity. The afternoon use of the Teen Center will continue during the winter months while students cannot be out of doors."

There are three change of addresses to record: **Mrs. Paul S. Howes (Constance Fuller)** 67 Lawler Street, Holyoke, Mass. 01041; **Earle O. Turner**, 5628 Cape Leyte Drive, Siesta Key, Sarasota, Fla.; **Louis W. Currier**, The Bradford House, Apartment 322, 8601 Manchester Road, Silver Spring, Md. 20901. . . . Our class is generally well represented at the monthly Alumni Council meetings. **Harold Richmond** as ex-president is there as are **Harold Wilkins** and **Lecester Hamilton**, the latter two representing different out of state M.I.T. clubs. The meetings are attractive not only for the quality of food but the character and topic of the speaker. There are probably not many, if any, institutions in the country where something like 200 alumni get together each month in its interest. Which is a reminder that it's just about time to be making your plans to attend Alumni Day on June 14. We hope to see you then.—**H. A. Affel**, Secretary, R.F.D. 2, Oakland, Maine.

'15

It won't be long—only six weeks to our 50th. In all our lifetime we can have only one of these reunions. You'll be there, of course! How about it? You've received the reunion booklet and your first notice. A final detailed notice and definite reservation card will be sent you this month. Please return that card at once—we need it. Many thanks. Some splendid letters have come with generous class dues checks—an average of \$8 each and more to come, I hope. I'd like very much to answer each letter personally but it's just impossible. I do want you to know I certainly do appreciate your interests in writing about yourselves. Again, many thanks. . . . On Saturday, February 27, **Gerry Rooney** (the younger **Pirate**) was married to **Janet Ann DeMichele** in the Sacred Heart Church, Newton Centre, Mass. It was a pleasure to be there and to see the old **Pirate** himself, strut proudly down the aisle. Many of us remember **Gerry** at our 45th Reunion and at our Boston and New York Class Dinners. He was always a welcome guest and an addition to our parties. We wish this young couple all the best for a long, successful happy life. . . . **Phil Alger** writes: "Some of my immediate projects are coauthorship of a Wiley book on Problems in Engineering Ethics, to appear in June, and of a book about Steinmetz—His Philosophy and Social Views,

which my own company 'Mohawk Development Service, Inc.' hopes to publish in May. And I am much occupied in the efforts of our Citizens League (I am treasurer) to obtain a modern charter for our county government. We put on a half-hour TV program on Channel 17 here at 7:30 each Wednesday evening. Then, I have several R.P.I. students doing laboratory projects that I must keep up with. And I am trying to get some of my ideas on AC motor speed control into hardware that I can test at R.P.I. In June I have to give a talk at the A.S.E.E. meeting on the ethics book, and I am trying to arrange a conference on project laboratories for engineering students. By the way, I'll be glad to take orders for the Steinmetz book any time. He said many wise things: "I would bequeath to every young man just one quality—divine discontent—the world belongs to the dissatisfied. If a man falls off a bridge, as soon as he finds himself under water, he immediately becomes very dissatisfied. The nth power of discontent stirs within him, and he comes to the top by his own efforts. If any man finds himself in a dead end job, he should just think of the man under water and summon the same feeling of discontent—in this way he will soon get a better job." I have extra reasons for coming to the M.I.T. affairs in June. My daughter will celebrate her 25th reunion at Radcliffe, and my grandson will graduate from Harvard. See you then."

Maurice Brandt writes: "Our Class 50th Reunion booklet is a beautiful memento—truly a masterpiece! Thanks a lot to you and the committee for the superb work you have done! I was stunned at the number of our classmates who have died since our 40th and 45th Reunions! It makes one think a lot. All those fellows were with us at each five year interval for 50 years who are no more of this earthly life. We must stay closer together than ever in their memories." . . . **Bill Campbell** wrote late February that it was 10 degrees below at his Manchester Depot, Vt., place. It couldn't have been any colder than when Fran and I were up there in an April snow storm. . . . **Mrs. Casselman** wrote that **Bridge** has been very sick in the hospital since January 12. He had been anticipating the reunion and, of course, is disappointed. We're sorry to have this bad news and wish him a speedy recovery. . . . **Verta and Jerry Coldwell** from Naples, Fla., wrote: "I was sorry to miss the New York class dinner at the Chemists' Club but it was a week later than usual this year and we were on our way down here. We'll be here until the end of March. I'm planning to be at the reunion in June and will see all of our classmates at that time. Verta joins me in sending our best regards to you and Fran." . . . **Harvey Daniels** at Delray Beach: "Our pleasant way of life continues. We divide our time between Florida and Minnesota—summers in the north and winters in Florida. I am thinking about our 50th and hope to make it but cannot make a decision until later. Kindest regards to you and other friends of old!" . . . From **Ellis Ellicott**, Baltimore: "I look forward to seeing you

at the reunion. I continue as chairman of the board of Ellicott Machine Corporation, and I am active at the office every day. We had a busy year in 1964, and I think 1965 will also be quite active. I used to do a great deal of foreign traveling in connection with overseas business, but leave most of it to the younger fellows now."

Harold Hadley, Worcester, wrote: "As you know I graduated from Tufts and our 50th comes this June so I won't be able to attend M.I.T. '15. I don't think anyone in the class would remember me. I doubt I would recognize a classmate if I met him on the street. I am retired and spend six months at Orleans Cape Cod and the other six in Worcester. I fish stripers in the summer and attend a few business meetings in the winter. I seem to keep busy doing very little. Best to the Class of 1915." . . . **Ken Johnson**, unfortunately, has been laid up again in the Riverside Hospital, Boonton, N.J. We're all sorry for you, Ken, and hope you recover quickly. . . . **Helen and Boots Malone** are "resting" at Sarasota. **Boots** wrote: "I went to Tampa to hear Dr. Killian at the luncheon held by the Central Florida M.I.T. Club and met **Gabe Hilton** there. . . . **Herman Morse** wrote from Akron: "We still hope to get to Cambridge in June although Marjorie's illness in Lucerne, Switzerland, last year complicates the situation. I have now been retired over three years, since December 1, 1961. I give some time to the United Community Fund, some as auditor of our church and serve on the Business Advisory Council to the Business Administration College at Kent State University which is growing by leaps and bounds: 17,000 now and expected to be 25,000 in 1970. These together with the yard, a little poor golf, and my personal affairs keep me from being bored. Hope we will see you in June." We send best wishes to his sick wife, Marjorie. . . . **Doug McMurtrie** is doing nothing in Gorham, N.H., and liking it. . . . **Ben Neal** heaps abuse on me in my underpaid secretary's job. The trip he refers to was a Grace Line cruise through the Canal to Lima, which we had to cancel because of the dock strike here. "You just don't know how happy I am to enclose a check for class dues, with check payable to M.I.T. 1915! The timing is terrible. Why is it that every time that you are just leaving for a trip you have to collect class dues???"

Forrest Purinton wrote: "Here is my check for dues, so don't cross me off your mailing list. I like to know what is going on. We are in Naples, Fla., this winter. They say it is the warmest winter in 16 years. It just suits us and we will sign up for next winter. It has been in the 80s every day for the last week. I am a cardiac case so my doctor chases us out of the north in November before the snow starts to fly. We will be back about the first of May. And here is some news for you. I will be 76 in about three weeks. I am saving all the information on the 50th reunion and will get there if I am able." We surely hope **Fors** is able to come to the reunion. . . . **DeWitt Ramsay** will not make it: "It is with considerable regret that I must say that I will not be at

the 50th Reunion. My wife and I are sailing for Europe on May 10 and will not return until after those important dates June 11-14. I would so much like to see you and the rest of my classmates again but this trip has been planned and reservations made a long time ago. You ask for notes about myself. Yes, I am retired after 35 years as senior partner of Smith, Ramsay and Company, members of New York Stock Exchange and underwriters of public utility financing. I am still on the board of directors of some corporations including New England Gas and Electric Association whose subsidiary, Cambridge Electric, serves M.I.T. May I extend my thanks and praise for the constant and efficient way that you have filled the office of secretary of our class. Hope to see you somehow, sometime." . . . **Al Sampson**, Beverly, Mass., writes like a tabloid columnist but certainly makes us anxious to see Mary when she gets here: "**Mary Plummer Rice** in Paris, has already started to pack her powder puff and plans to arrive at our 50th in the latest creation of *Chez de Mamphre* and in an aura of *Chanel #5*. All of which will be exhilarating to the local yokels and their optic and olefactory appurtenances. In her newsy note she mentioned a most pleasing vacation disporting her shapely self in the invigorating azure waters of the placid Mediterranean and basking on the warming sands of its shores where the *Caesars* trod in their pilgrimages to the Riviera. Envy of *Mala-chite Hue* envelopes me when I assay her vigorous energy and I wouldst I could hie myself hither and secure a package or so to restore my lagging voltage. Recent researches for ancestral merit has disclosed an ancestor of mine had the good sense to join hands in connubial bliss with an *Anne Plymmer* in 'ye town of *Plimouth'* in 1635. So, at the reunion should my greeting on meeting Mary seem amorous please bear in mind the cousinly connection, and, discount the heady allure of *Chanel*. You request news for *The Review*. All I have is the unusual observation that due to the length and the green of our front lawn grass it became necessary to mow the lawn on New Years Day."

Bill Spencer of Baltimore writes: "I have the sad news to report that **Al Walter** (Albert U.) is very seriously ill with cancer. We had been planning for the past year to (perhaps) drive up to the reunion together. I am feeling as good as 15 years ago and looking forward to seeing you all in June." Too bad about **Al Walter**, another sick classmate. . . . **Cliff Sifton** graciously writes: "1915 is very lucky to have you carry the ball for us." Many thanks, **Cliff**. Your kind words go a long way to offset some of the abuse I get (really). . . . That **Jim Tobey** is still having a tough winter in West Palm Beach, ah me. "You and your cohorts are to be congratulated on the Class 50th reunion booklet, which came in a few days ago. It is interesting and inspiring. I hope to attend some of the festivities, at least those at Coonamesset. All is well here. We have had really ideal weather for the most part. True, it did get down to 33 one night, but it also got up to 86 for a

record one day. Certainly dear old Florida, even at its worst, is better for us old crocks than the arctic regions of New England. Come on down and see us. With all best wishes to you and Fran from Lena and myself." . . . Here's a splendid letter from **Bob Welles** in Los Angeles, who was so good to us on our visit there in April, 1963: "Enclosed is the postcard with information about coming to class reunion this spring. My family think I ought to do it, and I must say the idea appeals to me, even though my wife won't be up to coming along. Since paying a gardener nowadays involves 'sharing the wealth' at a rather alarming rate, I keep six little pieces of motor-driven machinery running off and on to minimize the garden work. As a result I find myself spending considerable time as a mechanic. And I rather enjoy it, though sometimes I wish I knew more about it. See you in June."

Bob Warren in Dedham, Mass., writes: "The last time I saw you was in a store in Boston. I hope you are still in good health. Once in a while I see some former classmate, but **Jack Dalton** and you are the only ones who recognize me—I'm too fat!" . . . **Speed Williams** will be at the reunion. He wrote: "The New York class dinner, as always, was a swell party." It's always good to see you there, Charlie. . . . **Ray Wolcott** says writing checks is not easy to do—except for class dues. Wonderful Ray! . . . From his new business venture "The Continental Apartment," Tucson, Ariz., **Louis Zepfler** wrote that he will be at the reunion. . . . A late Christmas card from another of our reading public, **Edna and Frank Stubbings**, '27, Louisville, Quebec. . . . **Al Sampson, Jay Sindler** and I had a pleasant meeting at **Sam Berk's** Boston office regarding reunion souvenirs. I am not at liberty to disclose the plans, but wait until you get to the class cocktail party, Alumni Day afternoon at the M.I.T. Faculty Club—you'll see! . . . Reunion chairman, class secretaries and guys like **Ben Neal** should all be retired from business and have nothing to do but take care of class affairs. For, that seems to be about all Ben and I do, and have been doing for some time. However, underpaid as our jobs are they are still rewarding. You can make us happy by giving to Ben's 50th Fund and by paying your class dues to "Help Azel."—**Azel Mack**, Secretary, 100 Memorial Drive, Cambridge, Mass. 02142.

'16

It's not long now, just a month more, when the last, the very last, chance comes to attend a reunion, a 1916 reunion, that is numbered less than 50! How about that? The time and delightful place are familiar—the two or three day weekend from Friday through Sunday, June 11, 12, and 13, out at the far southeast corner of Cape Cod, Chatham Bars Inn, in Chatham. And what is it that **Ralph**

Fletcher is reported to have said the other day? Something like: "This has been a great location for us, and the arrangements with separate cottages and a couple of choice rooms in the main house has worked out nicely. Let's hope that good weather will once again permit the scheduling of a New England clambake at the shore's edge. Also remember that there is a nice 9-hole golf course as a part of the hotel property, and it offers an interesting test to golfers and duffers alike. All best wishes and I look forward to seeing you." . . . We still get expressions of sheer delight from those who have read some of **Sylvia (Vertrees) Young's** Safari Letters, portions of which we have had in the column from time to time. And, too, there have been repeated urgings that her work be published in book form. For example a recent letter from **Charlie Lawrence** read: "The enclosed was read by Lois and me with the utmost delight. If others are available I'd love to read them too. Moreover they should be assembled and published in book form with pictures of persons, places, and their polished rocks which are so stunningly beautiful." (Vert is an advanced rock hound of reputation; Sec.). Charlie says his travel days are over but "Just the same I did travel to South Africa with Vert and Sylvia, vividly sharing the beauties of lands and peoples through their eyes, warmed by their dear hearts and clear thoughts—they see beauty wherever they go." And Lois added: "It was happy for me to see Sylvia Young 'in my mind's eye' as I read her letter. She gave the 1916 wives a memorable afternoon last June while you were having a Class meeting." We regret to report that Sylvia has been having what Vert calls "a very tough time" with her eyes, so that they will not be able to take a trip to South America this summer as they had planned. Says Vert: "We will not stray far afield—maybe get into the high country of Colorado and Montana and try to keep out of some of the heat and humidity of the deep South. One day we hope to make the Mediterranean Cruise and sample some of **Irv McDaniel's** recommended eating places—they sounded almost too good to be true!"

If anyone is looking for information on how the below-the-Mason-Dixon-line boys occupy their time on retirement, let us contribute what we can by citing one or two examples. In the March issue, we gave the cover story of **Merrill Pratt** of Prattville, Ala. And we can supply further specific example material (which is what they say you should have, when, as parents, you advise growing children), this time on **Dina Coleman** in Lexington, Ky. At the moment, his business items include: (1) two brick plants to operate and another under construction, (2) the abandonment of underground mining at their Princess plant in favor of strip mining with all the changes necessary in equipment, hauling, and so forth, (3) management of the Philharmonic Orchestra, (4) vice-president and chairman of the Finance Committee of Transylvania College, (5) member of Fayette County Board of Education, (6) member of Board, Chamber of Commerce. And we

could add: (7) regular member of the Noted Group of Enthusiastic Attenders of the Class of 1916 Reunions. Incidentally, should you want a little more information on modern trends in education, take a look at the March 9, issue of Look Magazine and see what the Fayette County Board of Education is doing in the new concept of public school operation. See you in June, Dina!

From **Izzy Richmond's** reunion-time evidence of physical fitness, we can understand why the most newsworthy thing about him is, as he says, that he is "still working much harder than ever and enjoying it much more than ever before." In his office right on Newbury Street, Boston—Isidor Richmond and Carney Goldberg, Architects—a wide variety of buildings are being designed and executed at this time. These include: "a good size bank alteration, a fairly good size synagogue in the million dollar classification, and a couple of college dormitories that are now in the working drawing stage, and two more college dormitories which we are just about to commence. Each of these dormitories is in the million dollar classification. Then," says Izzy, "one of our more interesting projects, which may cost in the vicinity of \$600,000, is a sports center for Brandeis University consisting of a swimming pool, spectators' space, squash court, and a fencing salle. Also we have completed sketches for an industrial building for an electronic corporation out on Route 128. This weekend we are completing the sketches for a junior high school which will cost about a million and a half. There are also a couple of small public library projects." For recreation, Izzy does what he does at reunion time—gets a plane and just flies somewhere, for being "up there" all by himself in the blue, provides him with "not only relaxation but a thorough brain bath." When he wrote in February, he had just flown on the weekend to the ski country in the Berkshires between Bennington, Vt., and Pittsfield. He sends best wishes to all '16ers.

Jap Carr tells of his four weeks' stay in Hawaii where he and Hildegard "saw quite a bit of General and Mrs. Edmund H. Leavey. Ed and I served together at Schofield Barracks with the 3rd Engineers back in 1917 and he married the Governor's daughter and they now live, retired, in Honolulu. Ed was at the Institute in 1922-26 as assistant professor of military science." Jap says they enjoyed the thrill of "surfing in an outrigger canoe which must be akin to skiing. I know it is on a par with tobogganing—but we can't all still ski like President Ralph does." They went to their customary haunts in Florida in mid-December, celebrated their 45th wedding anniversary "and our son's and daughter-in-law's 11th with a big party at the Bath and Tennis Club. Aside from that we just enjoy the wonderful weather and I play tennis about five days a week and Hildegard goes to painting class two mornings a week." Jap says his only community activity "is for the local Red Cross. I'm trying to raise \$70M to pay off indebtedness on the chapter's new \$250M headquarters build-

ing." In February they had just finished "the last hurricane repairs to our house—fortunately not expensive, but it is difficult to get things done here during the season." . . . The **Steve Brophys** left home in Pawling, N. Y., on March 1 for a month or maybe more in Jamaica. The address sounds particularly good: "Crystal Ripples, Ocho Rios, Jamaica. Crystal Ripples is the name of the cottage on the beach which they have taken for the month. Steve says, "Should you be down that way, drop in!" Will do, if for example we are out flying some evening with Izzy Richmond.

We have gems of description in some of the **Irv McDaniel** letters of just over a year ago and some of our people, as for example architects, travelers, and lovers of art, should not be deprived of some of the things that Irv has to say. Here are comments on Florence: "It would take 400 pages to write about this, our favorite city. So I will just cover a few items I hope are different. In the five years we have been in Europe, we have never stayed at a pensione. This we had to correct so we are staying at the *Pensione Rigatti*—and it is wonderful. Our room is on the River Arno, two blocks above Ponte Vecchio, one block from Piazza Signoria and three blocks from Santa Croce. A short half-block away is our garage. We have a large room (this pensione was a palace in 1350), our own private bath and what a view. The meals have been excellent, the service superb and the costs are \$6.00/per day/demi pensione/per person/all taxes and services included. Of course, by this time you must have guessed that we are on a 'Michelangelo Pilgrimage,' so I will restrict this letter to him and the Etruscans. We are almost ready to qualify as Etruscan experts. Florence has one of the world's great museums and very few Americans visit it. There are just too many things to do and see here. This museum is the Museo Archeological in the Piazza Annunziata. They have one of the world's great three vases—the *Francois Vase* (Greek 550 B.C.). It is on the third floor and you have to bribe one of the guards to see it. While you are up there, get him to show you the paintings they have 'peeled off' several Etruscan Tombs. Next door to the museum is the *Santissima Annunziata* (1252)—the most ornate church in Florence. Andrea del Sarto has done some of his best work here, especially his 'Madonna' (1525). But in the oratory is the real painting of the Virgin Queen. The legend is that an angel one night painted the Virgin's face. Michelangelo said when he saw it that no human hand could have painted it, it was so beautiful. So around this painting there developed a beautiful religious ritual and for 700 years, the brides of Florence, immediately after their vows, come over to this church. They place their bridal bouquet on the altar of the Queen of the Virgins and as they leave, they say goodbye to virtue. We saw several newlyweds perform this ritual and in a few cases the grooms were in such a hurry they forgot to genuflect and cross themselves. Did you know we owe our marriage vows to the Etruscans? The Etrus-

can marriage vow was for a life long union of one man and one woman, entered into voluntarily for the sake of procreation of children and maintained on the basis of constant, mutual affection. They are the first people in the world to have such ideals. The early Romans adopted this vow but later as they became decadent with excessive vices it was discarded. Then the early Christian church adopted it and that is how we got it. The Etruscans worshipped anthropomorphic divinities. They had the holy trinity: Jupiter, Juno, and Minerva and the Romans adopted them." And so our IBM lesson of the month comes to a close—tune in, shall we say, next month for more. A card just received (March 2) from Irv and Kay from Monte Alban, Oaxaca, Mexico (consult your atlas) says: "This was the beginning, and marks the 3rd era or about 1000 B.C. Biggest find in Mexico, but no money, so they can only guess. I will be surprised at what happens." An earlier card from them in Sinaloa, read: "The West Coast of Mexico is lovely—a few fine hotels with no heat."

A letter from **Elizabeth Pattee** in Warwick, R. I., tells thus of an intention to retire: "Have had a busy winter closing up my professional practice, clearing out the accumulations of about 49 years of work, as well as clearing out my house here in Rhode Island to go into an apartment in one of these new retirement communities, just outside Princeton, N.J. A frightful experiment at my age but it seems a reasonably sensible thing to do under the circumstances." Her letterhead includes: "Fellow: The American Society of Landscape Architects—Member: American Institute of Architects," and she was, until only recently, professor of landscape architecture in the Rhode Island School of Design. We wouldn't be surprised if our School of Agriculture at Rutgers University heard about her new location and invited her to give a lecture or two on landscape gardening. She plans to continue spending summer months at her place in Small Point, Maine, "a gorgeous bit of shore." . . . **Phil Baker** is apparently pretty far along on the road to his pre-hospital normal but as of the middle of February was still not permitted bowling, golf, or dancing. But he sure appreciates his progress and sums it up with the descriptive comment "at least vertical!"

A welcome letter comes from **Howard Evans** at his since-1962-retirement "modest but very livable old house on the Maine coast 'where the mountains meet the sea,'" in Lincolnville. He retired in 1959 from a "very interesting career" with Stone & Webster Engineering Corporation. He says: "My last two major assignments involved top responsibility for structural engineering for the first large atomic energy power plant in America, at Shippingport, Pa., followed by the one I believe is the most successful of all, so far—the 'Yankee' plant at Rowe, Mass. After retirement he and his wife travelled for months all over the U. S. and Canada, 'visiting the places we had previously missed. Now, you can name it, in those areas—we've been

there!" After that, he was under pressure to accept an appointment as building commissioner for one of the big cities. "If I had taken it, with all its problems, I feel sure it would have shortened that comfortable old age I looked forward to. I did take a minor job for a couple of years, just to keep occupied. Finally, in 1962 I really retired. In this beautiful country, among the pleasant and friendly Maine people, there is enough to do, and I and my wife travel no more—we love it here, both winter and summer." Howard says they have gone by their 50th wedding anniversary, that he was the second one in the class to get hitched, in 1913, and the comfortable years they looked forward to are now a reality. Once again, say we, Maine sounds pretty good when you hear from those who really live there!

Last month we reported on the retirement party for **Arthur Wells** as town treasurer and tax collector in Wellesley after 35 years of service. Edward Rowe, '06, secretary of the Class of 1906 kindly typed and sent us copies of further newspaper articles about Arthur and retirement that have information not contained in the clipping sent us earlier by Dan Comiskey, as for example about the family. Here we are from the *Wellesley Townsman* of December 17, 1964:

"I hoped to be able to devote my full time to selling Mutual Funds, having been connected with the First Investors Corporation for the past 10 years," said Mr. Wells. Though the four Wells children are grown, Mrs. Wells keeps busy with her 10 grandchildren, her husband added. Son Arthur is a Wellesley contractor with offices in the Haynes Building. . . . The Wells twins, John and Alice, have become Lt. Commr. John B. Wells, U.S.N.R., Warminster, Pa., and Mrs. Carl A. Erickson of Nantucket. Younger son Peter lives at home and is associated with the R.E.A. Express Company." . . . **Bert Ellis** finds the annual reunions so enjoyable he expects to be regular from now on, starting last year. Says he doesn't have any "news" but "I did have lunch last week with a group of retired men from the G. E. Lamp Engineering Department and talked to **Willard Brown** who also attends these monthly luncheons. Willard is in fine shape and is breaking in a new Chrysler." . . . **Henry Shepard** sent us the clipping about **Jeff Gfroerer** and Winston Churchill that we reported last month, and, as for himself, says: "No particular change in my activities since I last wrote you."

Buck Bucknam reports continued enjoyment of retirement in Auburn, Calif., about 30 miles northeast of Sacramento in the foothills of the Sierras, where they have "30 inches of rain in the winter and none in the summer, just good sunshine." We jointly continue the job of trying to keep in touch with **Ed Jenkins** (one of our paper-route-sharing and jig-saw-puzzle-making-and-selling pals of high school days; Sec.), and when all else fails, Buck writes to Ed's sister in Swampscott. Buck expects to come all the way East in 1966 for the 50th even though it comes at a bad time because of needed garden-and-tree wettings. In mid-February he wrote:

"I have cut the lawn, roto-tilled the garden to kill weeds (will do it again before planting), sprayed peach, nectarine, and apricot trees (the apricot trees are starting to blossom) and weeded the strawberry patches." . . . **Ted (Moose) Jewett** writes that they didn't get South this winter because of Alexandra's hospital stay, but that she is coming along well (as of mid-February) "but will have to take it easy for a month or two at home." Ted also says friends in Buffalo tell of **Cy Guething's** repeat sojourn to the world famous pink sands at Harbour Island, Bahamas, and that he himself sees **Lee Jones** every now and then, who keeps out of mischief by his activities in a travel agency. . . . **Emory Kemp** reported a recent meeting and dinner of the Alumni Club of Southwest Florida with Don Severance, '38, as principal speaker—over 14 present out of a membership of 40 drawn from a total of 52 living in Sarasota. "The oldest present was David H. Hayden '99, the youngest, Stuart Solin, '63, and the closest classmate, Vince Panettiere." Ever busy, Emory has joined the Retired Men's Club, was consecrated a Deacon in the 1st Congregational Church of Sarasota (and Ruth a Deaconess at the same time), but has resigned as vice-president of the Sarasota Springs Civic Association. And commenting on the lovely winter weather in his area, he supplies this great big fact—cost this winter for fuel (heating) from November 1 to February 18 totals \$11.74, which he calls "not bad!" Sixteeners all remember **Class Baby Malcolm D. Kemp**—Emory says **Malcolm** went with **Sears Roebuck** about a year ago as an internal auditor, for the Bethlehem Ship Plant in Quincy, where he worked for 32 years, closed down then. Emory notes hearing from **Arvin Page** in Winston-Salem who has been fighting a very difficult fight with arthritis.

Saul Hoffman writes from the university library (UCLA) in Los Angeles, where he has been putting in busy periods in research and abstracting. As for physical work he asks: "What can an old grandpa do?" We are looking for bits of philosophy, we have more time to contemplate such bits than we used to, and here is an excellent one from Saul, a "tidbit" of his: "Each of us has his own orbit—his own solar system—and we live mostly in our own little world, realizing at the same time that there is a human chain which is unbroken throughout eternity and stems from the highest to the lowest, so that each boost to the next fellow helps you and all humanity." And another quotation from **Abraham Lincoln**: "Character is like a tree and reputation like its shadow. The shadow is what we think of it; the tree is the real thing." Saul's two sons are associate professors at Tech and his daughter is in France studying further in French. . . . And now, finally, the old refrain—to paraphrase the message on a home-made valentine we once received, showing two stickmen, one small and one large, bearing the words: "Love me little, love me long"—help keep the little old column full and interesting by writing a little but writing often.—**Harold F. Dodge**, Secre-

tary, 96 Briarcliff Road, Mountain Lakes, N.J.; **Ralph A. Fletcher**, President, Box 71, West Chelmsford, Mass.

'17

In last month's notes you were advised that **Tom Meloy** visited the South Pole. Here is an account of his visit: "The trip to Antarctica was a rough deal but very interesting. I talked to a number of students who were there for the summer season, and for some unknown reason they didn't find anyone there from M.I.T. I proved a rather bad Polar type. My nose froze constantly, especially in the hours that I spent at the South Pole proper. The clothing one has to wear is fantastic. If you don't take proper care it fits, as I didn't, and if you are a particularly sartorial person, which I am not, you have a lot of trouble; three pairs of pants, three layers of gloves, sweaters, great coats, etc. If it hadn't been for the chief scientist at the Pole, a very genial Basque, I think I would have perished. All things being equal, however, I would like to go back. I would probably have my clothes made at Abercrombies except for the Navy boots. We went pretty native for 10 days. Ninety-five percent of all the ice in the world is at Antarctica; the South Pole is ten thousand feet high, and the most miserable place in the world, except that our station has a Ninety Club with liquor, music and beautiful women pictorially. I came back leisurely through New Zealand, Australia, Fiji and Tahiti. I don't recommend any of our classmates visiting Tahiti unless they are on business. There is a 15,000 foot airstrip, so that Hawaii and Los Angeles are between seven and eight hours away. The hotel men of Hawaii and Miami successfully altered the island to their patterns in form and in price. On the other side, **General de Gaulle** is busily engaged in converting this gem into the Marseilles of the South Pacific. He has 8,000 troops there including two regiments of the Foreign Legion. However, I did run into some friends who had sailed a ketch over from California. We spent Christmas and Christmas dinner on the ketch, with martinis, mint juleps, champaign and brandy, which is a lot for a 36-foot ketch. There are places and adventures still in the South Seas and even romance, but if anybody wants this information before they go down, they had better consult me. I am busily engaged in a number of enterprises, some worthwhile and some not. I would like to see anyone who happens to be in Washington. My secretary knows where I am at all times, and would be glad to arrange a get-together."

In the notes for February, you read an item from **Dean Parker** about his hospital experience while on the way to the September, 1964, conference at M.I.T. for class and club officers. This elicited a note from **Rad Stevens** of Elgin, Ill., as follows: "I note Dean Parker's letter where he felt that the roof fell in on him with a blood clot. Please get word to him that I had exactly the same thing in 1951. I

was rushed to St. Luke's Hospital in Chicago and had Dr. deTackitts, who was being consulted on King Edward at the same time, who had the same trouble. I felt at the time the same way that Dean felt. Just please assure him that I am still working full time, harder than ever. Last summer I played 104 games of golf. During the winter I shoot skeet and work out at the Y.M.C.A. three times a week, although I am still wearing my rubber stockings. So, please pass on to him that he will come out of it okay. As I think you know, I sold out two years ago last fall to Doughboy Industries, Inc., and we operate as an independent division of that company, known as the Elgin Manufacturing Division. My son is the general manager and assumes all the responsibilities. I am packaging machinery consultant and vice-president of the parent company, and, frankly, am working harder than I ever have, but enjoying every bit of it. As outlined above, golf is my summer hobby—not much good, but have a lot of fun trying. In the winter I work out at the Y and shoot skeet. In three weeks (from the date of the letter, February 17) Mrs. Stevens and I will leave on a four week cruise with the Grace Line to Venezuela."

On February 16 the news media announced the death of **Stanley K. Cooper** of Winchester, Mass. He was 70 years of age. He served many years as an industrial engineer for the Johns-Manville Company of New Jersey. During World War I he was an ensign in the U.S. Navy, commanding a submarine chaser. Burial was at Kennebunk, Maine. . . . The following news item appeared in the Mechanical Engineering magazine in December, 1964: "**William H. McAdams**, professor emeritus, Massachusetts Institute of Technology, Cambridge, Mass., is one of the world's prominent chemical engineers. He is perhaps best known for his book, 'Heat Transmission' published originally in 1933 and now in its 3rd edition. This is a pioneer work of bringing together, interpreting, and unifying the world's data on heat transfer. It is the most widely used publication throughout the heat transfer industry." . . . A note from M.I.T. informs us that "**Richard T. Lyons** of Houston, Texas, will represent M.I.T. at the inauguration of **Arleigh Brantley Templeton** as eighth President of Sam Houston State Teachers College in Huntsville, Texas, on April 5 and 6, 1965." Academic regalia was ordered for Dick. For those interested, his measurements are given as: height, 5' 7½"; weight, 186 lbs; and hat size, 7½.—**W. I. McNeill**, Secretary, 107 Wood Pond Road, West Hartford, Conn. 06107; **C. D. Proctor**, Assistant Secretary, P.O. Box 336, Lincoln Park, N.J. 07035.

'18

The striking of the clock on the fireplace mantle brings to mind the old question concerning what makes people tick, and the far more important one of how to help them chime on the hour. That sound is a union of tones caused by the

passage of time. Courtesy of **John Kilduff** comes information as to the chiming of **Leslie Marshall**. During the past several years, with the strange, incommunicable gifts which go to make up a good executive, he has been conducting two successful companies in Columbus, Ohio. The L. H. Marshall Company manufactures thermocouple tips for use in non-ferrous foundries. The Marshall Products Company obviously manufactures something, what, deponent sayeth not. Anyway, after an arduous preparation in the Waltham High School, Les was duly graduated in chemical engineering. However, a natural ability in business administration soon showed itself. Time passed, till now the hour has chimed. He sold a large interest in the Marshall Products Company to the National Research Corporation of Cambridge which, in turn, has been purchased by the Norton Grinder people of Worcester. This exchange of stock now gives Marshall an interest in Norton, which is an old blue chip. The present set-up allows him to spend three months a year at Fort Myers, Fla., where he has accommodations at 3560 Stuart Court. Perhaps there is a fireplace there with a clock striking on the mantle. . . . **Bill Wyer**, who came to us through Yale, and in his profession has been more likely to hear locomotive bells than clock chimes, announces that his firm of transportation consultants has combined with Peat, Marwick, Mitchell and Company, certified public accountants. The business will go on as before under the old name of Wyer, Dick and Company, but as a division of Peat, Marwick, Mitchell and Company. . . . Speaking of bells—telephone bells this time—gotten by work and kept through unrelenting effort, **Carleton Tucker** has more to his chronicle than we knew last month. He is a consultant on telephone problems for Edgerton, Germeshausen and Grier; Arthur D. Little; Kennicott Copper, and Harvard University. He is retired of course, works half time at M.I.T. for half pay, but is there every day from nine to five just the same, continues as executive officer for Course VI and, so he says, transports five secretaries to work in his car. That ought to ring the chimes for any old man.

As time ticks away with a sound which has become more deafening for some of us, **Al Sawyer** continues to enjoy Ormond Beach. He built his own house there. He has mango and avocado trees in his back yard. Reliable rumor has it that one of his neighbors claims to have heard the sound of threatened violence from a rattle snake. Occasionally he breathes the Chicago air of industry again as a consultant for the Dole Refrigerating Company. We remember that Lillian broke her hip in 1960 and hope that the new ball and socket joint is functioning perfectly. See you both on the Cape in June. . . . **Charlie Tavener**, when last heard from, was taking time out from his regular job of making valves as vice-president and treasurer of Kaye and MacDonald, in the hope of synchronizing the ticking of those responsible for the planning of the freeway through West Orange. Some wanted an elevated structure, Charlie was on the side of the tunnel diggers. Thus has

the former president of the Aeronautics Club at M.I.T. turned from the air to underground. He raised \$60,000 in various ways to pay for a study of the situation. So the freeway time stood still for five years. Meanwhile, as a Tech man should (and don't you dare to say "like a Tech man should"), to get for himself a sound background to guide, not impede change, he joined the Highway Research Board in Washington, the American Public Works Association, the American Society of Planning Officials, and acquired a library of appropriate publications to study after a long, hard day in the office. In the meantime he has served as a vestryman at St. Mark's Episcopal Church, as former president and director of the local Chamber of Commerce, and as a grandfather to six.

Nor has the clock failed to chime for **Alexander Magoun**. The very week he reached the 70's, Franklin Pierce College made him Chairman of the Department of Social Science (nine members). What he hopes most to accomplish is the integration of education instead of each subject being treated as though it were in a watertight compartment. Why shouldn't some examples for psychology—to cite one case—be taken from the course in history? This hooking together would mean more work for the professors, and professors are likely to be as lazy as anyone else. Maybe here is a pioneer effort in untrodden ways, but the pearls of learning ought to be more dazzling if obviously strung in a related pattern instead of scattered on the intellectual wind.

M.I.T. has chimed on the hour once again, only this time it waited a full century to do it. On February 20, exactly two weeks before this is being written, the Institute celebrated the 100th anniversary of the holding of its first class. The charter was granted four years earlier, but the Civil War held up its awesome hand in postponement. On that February day, 15 young men gathered in a room provided on its second floor by the Mercantile Library at 16 Summer Street, Boston. Technology was in business! What a surprise those 15 would have to see the present extent of that humbly modest beginning! How surprised even we would have been as freshmen! Brethren who have read and remembered the class notes of December, 1963, and of November, 1964, need not be reminded that before he died **Pete Sanger** signed up the Wianno Club at Osterville, where we were in 1963, for an interim reunion to be held June 11-13 this year. See you then. —**F. Alexander Magoun**, Secretary, Jaffrey, N. H.

'19

A. Stuart Kelsey, hospital personnel specialist, is teaching a program in modern methods of supervision at Waterbury, Conn., Hospital this year. Mr. Kelsey has been engaged as a personnel consultant by hospitals for the last 15 years. For four years, he lectured to graduate

students in hospital administration at Yale University School of Medicine. Kelsey has led various personnel institutes and workshops for the American Hospital Association and the New England Hospital Assembly. He has authored numerous articles for leading hospital magazines and has been a trustee of Morton Hospital, Taunton, Mass., for 14 years. . . . In December, **Ben Bristol**, chairman of the Foxboro Company, was appointed a trustee of Worcester Academy. . . . **Reginald S. Hunt** died on February 10, in Auburndale, Mass. After receiving a Ph.D. from M.I.T. in chemistry in 1924, he taught for several years at Boston University's School of Medicine. Later he enrolled in the BU medical school and received his M.D. in 1935. He then became an anesthesiologist at the Massachusetts Memorial Hospitals and later chief of anesthesia. Dr. Hunt was later named chief of anesthesia at Newton-Wellesley Hospital and served in that position until his retirement in 1953. . . . **Ross H. Hysom**, of Wellesley Hills, died on January 22. He was a partner in the firm of Hedge and Matthesis in Needham. . . . **Stuart J. Hayes**, of West Brookfield, Mass., died in December, 1964. Prior to retirement, he was a fiber expert for the Ludlow Corporation.

Colonel **Robert Litehiser** was the recipient of a citation award presented by the Ohio Society of Professional Engineers at their annual convention in Toledo, March, 1964. The citation, the highest honor the society can bestow, was "in recognition of his eminence as an engineer, for distinguished service in the search for scientific knowledge and for his dedication and accomplishments in behalf of the engineering profession. . . . Your secretary has been south for January and February and will be in Europe (mostly Spain) in April. If the notes seem empty or bare, my travels contribute to the silence of the class in correspondence. On our way south, we stopped with **Ren Smith** and his wife, Grace. Grace is making a good recovery after breaking her leg last summer. Ren is planning to buy a new cruiser which can be docked outside his front door on the Potomac River. . . . Following is a list of new addresses received: **Harold W. McIntosh**, Box 983, Vineyard Haven, Mass. 02568; **Cutler P. Davis**, 88 East Avenue, Springfield, N. Y.; **John E. Cassidy**, Apt. 16A, 69-Fifth Avenue, New York, N.Y. 10003; **W. Roy Mackay** 2022 Mt. Vernon street, Orlando, Fla. 32803; **Maurice H. Role**, 7 Newaire Road, Hyde Park, Mass. 02136; **Leon I. Snow**, c/o Mrs. W. W. Teich, 10 Mellen Lane, Wayland, Mass.; and **Richard S. Holmgren**, 10037 Fuerte Drive, La Mesa, Calif. 92041.—**Eugene R. Smoley**, Secretary, 30 School Lane, Scarsdale, N.Y.

'20

Two of our classmates who have distinguished themselves in the ceramics field have been prominent in the news. **Harry Kahn's** retirement from Stylon

Corporation, Milford, Mass., has been announced. He was plant superintendent of Stylon for the last 12 years and had been active in ceramic research, development, and production for many years. Running his own ceramic tile plant in Mattawan, N.J., he had been a civil defense director and American Legion commander there. During World War II, Harry served four years in the U.S. Army, two of them as production control head of the ceramics industry in Germany. He also served as port chemical officer at Le Havre and retired as a major in the chemical warfare service. Living in Uxbridge, Harry and Mrs. Kahn are active in community affairs and he is on the school building committee. Their son, Harry Jr., is a lawyer in Boston. Your classmates are wishing you many happy, healthy years, Harry and look forward to seeing you at the 45th. . . . **Henry H. Blau**, who got his master's degree with us in 1920, has been awarded the Bleining Memorial Medal and Scroll by the Pittsburgh section of the American Ceramic Society for his work in glass technology. Glass blocks and fused cast refractories are largely the result of his pioneer efforts. He has presented 26 technical papers on his specialty and holds many patents. . . . **Willard B. Riddell**, who was a graduate student in 1920 died recently in Hamilton, Ontario, where he was city architect. He won the Rotch prize in architecture at M.I.T.

Norrie and Betty Abbott have spent a part of the winter season traveling in Mexico and Grenada, B.W.I. . . . **Buck and Mary Clark** have been sojourning in Phoenix, Ariz., and went from there to San Diego to visit **Jim and Lucy Gibson**. . . . **Perk and Mina Bugbee** spent some time in Sarasota and your secretary and his Amy ducked the winds of March in New England by visiting their daughter and grandchildren in San Rafael, Calif. All of the above will be back in plenty of time for the reunion. . . . **Bud Cofren** reports good recovery from an accident in his home in Winter Haven, Fla., which cracked several ribs and banged his noggin. He says his convalescence was speeded by visits from **Scotty** and **Eleanor Wells** who were in Largo for the winter, and by **Ed** and **Beth Ryer** who were in Winter Haven for a golf match. The above named are also expected to be on hand at Stockbridge next month. . . . Last call for reservations, advice, assistance on your reunion plans, if needed. It's going to be the best yet. Don't miss out!—**Harold Bugbee**, Secretary, 21 Everell Road, Winchester, Mass.

'21

Alumni Day on June 14, 1965, is almost here and it's time to make certain you have sent in your application to the Alumni Association for tickets. As usual, members of '21 will get together for the informal luncheon in the Great Court and will be seated together in Rockwell Cage at dinner time. You and your wife will be most cordially wel-

comed to these and the other enjoyable events of the day. Come and join us. . . . **Samuel E. Lunden** of 548 South Spring Street, Los Angeles 13, Calif., continues the high level of activities which has brought honor and fame to all of our exceptionally notable group of West Coast architects. Sam has now been honored by election as president of the Town Hall of Los Angeles, a 3,600-member men's civic organization which serves as an open forum for the discussion of public questions. It has 11 sections through which its members engage in serious study of important community issues, culminating in extensive reports comprising objective information and recommendations that are made available to all interested citizens to assist them in forming opinions and taking intelligent action. Sam has served on the organization's board of governors for nine years. He is a past president of the M. I. T. Club of Southern California and currently is a member of its board of governors. He has been an architect and city planner in Los Angeles since 1928 and is a partner in the firm of Samuel E. Lunden, F.A.I.A., and Joseph L. Johnson, A.I.A. He is also a director of the California Council of Architects. Sam is well known for his work on the Pacific Coast Stock Exchange Building in Los Angeles, the Doheny Library at the University of Southern California and the Health Building in the L.A. Civic Center. He has served as national vice-president of the American Institute of Architects. In the planning field, Sam authored a publication entitled "Community Development Through an Exposition for Los Angeles" and recently prepared the master plan for the Temple urban renewal project. He has been a regular attendee at our reunions and these printed congratulations are just to tide over until we all see him in person in June, 1966.

Not to be outdone by the far West, **William J. Sherry**, president of the Sherry Petroleum Company, 1801 First National Bank Building, Tulsa, Okla., has been honored by appointment as chairman of the Old Timers Committee for the 1966 International Petroleum Exposition in Tulsa. A popular independent oil operator who is widely known as "Mr. Oklahoma," Bill's task will be to select six oil men to be honored for their contributions to the industry. They will comprise a "pioneer of pioneers" from the overall industry and a "grand old man" from each of the respective drilling, production, pipeline, refining and equipment supply divisions. Bill is a native of Salamanca, N.Y., who was graduated with us after attending Notre Dame and who started his career as a geologist. He has served on the Corporation of M.I.T., as a governor of the University of Notre Dame Foundation and as a director of the Oklahoma State University Foundation. His memberships include the American Association of Petroleum Geologists, American Petroleum Institute, Independent Petroleum Association of America, Tulsa Geological Society and the American Institute of Mining, Metallurgical and Petroleum

Engineers. For his friendship and loyal service, we pick Bill Sherry as one of the grand young men of '21. . . . The charter membership of the new National Academy of Engineering, under the presidency of **Augustus B. Kinzel**, includes among the 25 who formulated the objects and purposes of the academy, **Arthur E. Raymond**, retired vice-president for engineering of Douglas Aircraft Company and now consultant to the Rand Corporation.

A note from **Munnie and Alex Hawes**, who are vacationing in West Palm Beach, Fla., says: "Never had more nearly perfect weather anywhere. Today, we went by boat up the inland waterway to Jupiter Lighthouse." Simultaneously, a note arrived from **George and Edna Gokey**, written at the Hawaiian Village Hotel in Honolulu, which says: "Don't faint upon receipt of this card. We are spending three months in this paradise (under construction). This place is growing by leaps and bounds and there is much new building. Count us in on our 45th reunion next year!" . . . A personal letter from **Carlton E. Tucker**, '18, Professor and Executive Officer of the Department of Electrical Engineering, says in part: "Word has been received that Professor **Claire W. Ricker**, '14 passed away on January 19, 1965. Since you knew him, I thought you would be interested. Ednah Blanchard felt that a great many of your classmates, who were in the first class of Course VI-A, would also like to know and you may want to mention it in the Class of '21 news. As you remember, Professor Ricker worked with Professor Timbie on Course VI-A administration and was very close to most of these people. My best wishes to you." . . . Did you notice the advertisement in the March issue of The Review for "Enterprise Associates," which offers aid in venture analysis, corporate planning and research management? And who fits into the equation that solves all these weighty factors? Why, none other than our own **John J. Healy** of 1 Crescent Avenue, Scituate, Mass., 02066! Elsewhere in the professional cards in The Review is one for **Fabric Research Laboratories, Inc.**, of 1000 Providence Highway, Dedham, Mass., near the U.S. 1 interchange on Route 128, where **Walter J. Hamburger** shares in research, development and consultation on fibrous, organic and related materials.

"For he himself hath said it and it is to his credit" that **David O. Woodbury** has come through with the long-promised annual letter on the state of things at Shore Road, Ogunquit, Maine. But here's Dave: "Your kind words in a recent issue of The Review remind me that I owe you some news. I don't know how long since I sent you anything, so stop me if you've heard this one. I seem to be endlessly involved in writing books and I'm getting younger every day—at least my readers are. The first one, 'When the Ice Came,' a juvenile affair about glaciers, seems to have found favor with Dodd, Mead and they asked me to join their series, 'The New World of This and That,' which I did with an exposé

of the peaceful atom for the little darlings. This will be in bookstores before you put this message into print. I'm now embarked upon an equally simple subject—cryogenics. If any of you think that it's easy explaining these things to kids of 10 to 12, guess again! But I find it can be done with the lavish help of the very good pictures my old friends in the big companies give me. Cryo, which I continually have to remind my adult friends who inquire, is not about how to stop children crying. Most of the oldsters have never heard of extreme low temperatures. Somehow, in all of this, I've managed to run off a novel—a sequel to my first, 'Five Days to Oblivion.' This one goes by the blasphemous title of 'Mr. Faraday's Formula.' And it's quite a formula, as those who can't resist buying the book will soon find out. It's scheduled for issue in April. I'm getting set (while studying cryogenics) to write a third novel under the title 'You're Next on the List!' which is all the progress I've made so far. I think it will start with fluoridation and end up putting hard liquor in the water mains or even something more startling. How a promising engineering career, which started modestly enough in the manholes of San Francisco 42 years ago, should have settled down to writing kid's books with one hand and whodunits with the other, I don't know. I suspect my old professors would be ashamed of me, if any are still alive. We are enjoying a snowy winter here in Maine, with a good deal of minor inventing on the side. Nothing patentable yet, but there's always the off-chance of blundering into something that somebody will want besides me and my long-suffering wife. We're going to California in April to look over our newest grandchild, whose parents slipped and named it Matthew David. Some kind of record; I made it on the eighth try! All the other sons and daughters-in-law managed to avoid naming their offspring for Grandpa by fishing up names that haven't been used in this country for centuries: Bruce, Bryan, Anthony, Patrick and Heather—oh, India says that one was a girl, so no fair! Not a David in the lot till now. All the best from us both to both of you."

From Palm Springs, Calif., came an unusual document, jointly signed by **Jackson W. Kendall** of 401 Hermosa Place, South Pasadena, Calif., and **Dana E. Kepner** of 550 Alcott Street, Denver 4, Colo. It says: "The Kendalls and Kepners send greetings to the Clarkes. The Kepners are spending a month at La Jolla and this weekend with the Kendalls. Yesterday, we drove to Palm Springs. Saturday, we'll be in Pasadena and vicinity. Lots of chit-chat. We're all hoping to see you in June, 1966, at the reunion." The Kendalls are wonderful hosts and it sounds as if a good time was had by all. It's great news that Beryl and Dana will come east next year, as well as Marge and Jack, for our 45th in Groton, Conn. . . . History repeated again this year and we're glad it did. A note from **Alexander D. Harvey**, vacationing in Harbour Island, Bahamas, on Pink Sands Beach, remarks that: "We're

hardship cases here—it got as low as 60 one morning! Beach, food and people wonderful. Our best to you." As it happened last year, **Ralph** and **Madeline Shaw** were again vacationing at Harbour Island and the same mail brought a card in which Rufe says: "We are sojourning here with fellow guests, Mr. and Mrs. Dan Harvey—a hard rock miner from Course III." . . . A welcome letter from **Colonel Victor S. Phaneuf** of 3951 S.W. 4th Place, Gainesville, Fla., who is a professor in the department of building construction, College of Architecture and Fine Arts, University of Florida, says, in part: "As you may know, I retired from the army in August, 1958, after more than 34 years in the reserves. I saw service in World War I, the C.C.C. and in World War II. I left L. R. Porter Company, engineers and contractors of Beverly, Mass., also in August, 1958, and started teaching here in September of that year. I like teaching very much and love Florida but, of course, I miss my son, Richard, and his family, who live in Rockville, Conn. I would like to attend our 45th reunion in 1966 but June is a bad month for teachers to get away. Thanks for the invitation to stop in and see you some time; I don't promise, but you never can tell. If you ever come to Florida, be sure to see us. If you travel Route 301, Gainesville will take you only seven miles out of your way." Hope you will get up here, Vic.

The annual issue of "M.I.T. Alumni Make News—1964" notes that **Gus Kinzel** was named a trustee of Caltech; that **Liz Gatewood**, '22, was honored with the **David W. Taylor Medal** of the Society of Naval Architects and Marine Engineers; and that "Long-time science writer, **David O. Woodbury**, turned out his first novel in 1963, a whodunit titled 'Five Days to Oblivion.' It did very well. This year he has followed up with 'Breakthrough.' Hero of both books is **Dr. Riam** of Eastern Technological Institute in Cambridge, scientist turned detective." The editor's intentions were good but while he wasn't looking the gremlins got past the proofreader and put **Dave** in the Class of '20! . . . News of **John W. Barriger** comes at us from all sides, but this time it's about **John W. Barriger**, 4th, '49, who has been elected president of the M.I.T. Club of Southern California. . . . **Elliott B. Roberts**, Captain, U. S. Coast and Geodetic Survey (retired), wrote a grand letter from his home, 4500 Wetherill Road, Westmoreland Hills, Md., 20016, in which he says: "Imagine my astonishment on turning to the class notes in the February Review to find myself mentioned. And in the same breath, so to speak, with the eminent **David Woodbury**, too! But the notes, I presume, thrive on news of class members so, after a long silence, I contribute again with my little bit of personal history. My last 17 years of active service in the Coast and Geodetic Survey saw me as chief, Division of Geophysics, administering geomagnetic and seismological investigations, and finally as assistant director in charge of the Bureau's Research and Development Office. During this time, my contributions,

as I reckoned them, may have culminated in the organization of the well-publicized **Seismic Sea Wave Warning System** centered at the **Honolulu Magnetic Observatory**, the initiation of aeromagnetic surveys of the **North Polar area**, the building of several new field observatories and the formation of the then new office of **R. and D.** I also performed services in three international scientific organizations—the **International Union of Geodesy and Geophysics**, the **Pan American Institute of Geography and History** and (as a member of the **U.S. National Committee for the International Geophysical Year**) the **Special Committee for the I.G.Y.** I have participated in more than 15 international congresses in many parts of the world—possibly useful and certainly interesting. Three years go, retired for age, I entered into a new and possibly busier stage of self-employment and of being tagged for committee assignments and all manner of other gratis services. Among the latter have been committee work at my club, the **Cosmos** in Washington, and various assignments for the **Retired Officers Association**. My more remunerative work has been the editorship of the **Explorers Journal**, published by my club, **The Explorers**, of New York; writing for fees; and sporadic consulting work. Since retiring, I have published two books through **Little, Brown** of Boston, both juvenile science works; I have just finished another for **Educational Services, Inc.**; and I have a contract for a paperback with **Pyramid Publications**. I have published a hundred or more articles, mostly science interpretation, some of which were paid and some not. Among the things I have written which I liked best was a short article in "Americas" on **Balboa's** discovery of the **Pacific Ocean**, a piece that got reprinted in the **Explorers Journal** and elicited praise from the former **King of the Belgians**. My side interests are photography and music. My wife, **Rebecca**, and I have one child, **Nancy**, now married and living with her husband, an insurance executive, and two children in **Cedar Rapids, Iowa**. As we have previously remarked in these columns, **Elliott**, or "Mr. Coast and Geodetic Survey," as he has been affectionately known, is a writer and photographer of considerable ability. You have occasionally seen some of his photographs reproduced in the Review. We have at hand two interesting pamphlets from the **Smithsonian Report**, reprinted by the **Smithsonian Institution**, containing respectively, **Elliott's** account of "The **I.G.Y.** in Retrospect" and his "History of a Tsunami," an exciting story of a subterranean cleavage in **Alaska** in 1958. Many thanks, **Elliott**.

Retirement is many things to many people and we are always interested in recording here the novel ways in which members of '21 continue busy after having been so active in preceding years. For instance, **Joseph Wenick** is discovering what has been said so often—that he just can't find time to do it all! We often see **Joe** at the lively meetings of the **M.I.T. Club of Northern New Jersey's** board of governors, where he is ex-

tremely active as treasurer and a prime mover in every project. Joe serves on the board of trustees of the library in his home community of Caldwell, N.J., and has recently been made president of the board. As a member of the M.I.T. Educational Council, he is very much concerned with the admission to the Institute of promising high school seniors in his home area. He also serves the Alumni Council as representative for the Richmond, Va., M.I.T. club and regularly attends council meetings in Cambridge. To maintain his connection with industry, Joe has volunteered to serve the S.C.O.R.E. program—Service Corps of Retired Executives—sponsored by the Small Business Administration to provide free counseling service in marketing, production and financial matters for firms with less than 25 employees. Joe feels that his efforts in aiding these small concerns have been most rewarding. Dorothy is also busy with volunteer hospital duties and a health and medical program in their home town, so the Wenicks don't find time hanging heavy on their hands.

For three or four days prior to Alumni Day on June 13, 1966, the Class of '21 will observe its 45th reunion at the Griswold Hotel and Country Club on Eastern Point in Groton, Conn., and then will go to Cambridge for the Alumni Day festivities on campus. If you are at a distant point in the nation or beyond the shores of the North American continent, we specially urge you to start making your plans now to join your classmates on this memorable occasion. Informal returns indicate the usual goodly number intend to be present. Freed from demanding business ties by retirement, many couples say they view the reunion as an excellent opportunity to vacation in one of the most ideal spots in all of New England, while renewing old friendships and getting a rare chance to see the amazing new Technology campus at a time when it is completely open and in full operation for the occasion but not crowded with the normal bustle of students and staff. **Mel Jenney's** reunion committee picked the Griswold especially because of its many added attractions for our maturity, such as easy accessibility from anywhere on earth by some simple combination of air, rail, boat or car transportation, all of which practically come to the door of the Griswold, which is on beautiful Long Island Sound, about half-way between New York and Boston. The huge hotel and its 170 acres provide every imaginable facility and comfort that would be expected of a top-notch establishment, plus the added features of all the resort attractions, including a large Olympic pool, a beach, a championship golf course, spacious grounds and verandas for loafing in the sun or out of it. Good food, comfortable rooms and a competent staff ensure a pleasant stay and the proximity of old and modern points of interest make the area well worth exploring past the limited time of the reunion itself. It is planned to make transportation to Cambridge readily available to all those who do not come by car and hotel reservations in

Boston at this busy commencement time for local schools can be made on request to the reunion committee. This committee has not yet revealed the special program items which are guaranteed to make this 45th anniversary a particularly enjoyable reunion and much of the detailed activities must be left to the notices which are scheduled to go out by mail, starting in the early fall of this year. Suffice it to note there will be ample scope for both classmates and their ladies and guests to partake of pleasant fellowship to the fullest. We dislike to remind you that time continues to pass at unabated speed and, despite our continued high reunion attendance records, each of these five-year intervals finds fewer remaining members of our group who can be expected to be present. So come now while you and your many friends can still get together. Write **Mel Jenney** if you need advance aid and tell your secretaries how they can help to get your close associates to attend or otherwise be of service to make certain you will have a good time in 1966.—**Carole A. Clarke**, Secretary, 608 Union Lane, Brielle, N. J.; **Edwin T. Steffian**, Assistant Secretary, c/o Edwin T. Steffian and Associates, 376 Boylston Street, Boston, Mass. 02116; **Melvin R. Jenney**, Reunion Chairman, c/o Kenway, Jenney and Hildreth, 24 School Street, Boston, Mass. 02108.

'22

Due to the absence of snow and bad weather in Buffalo, your secretary went to Florida for ten days in February to find a more invigorating climate. This was like fishing—it was here last week—so all we had was beautiful, balmy weather at 77 degrees. This led up to a visit with our southern vice-president, **Francis M. Kurtz**. Frank does not live at the listed address of Box 2512 Delray Beach, but at 734 N.W. Ninth Street. Our information had him at N.E. Ninth Street which is non-existent. After driving back and forth across the bridge twice, and having some brilliant thoughts from my traveling companion, the correct, easy-to-find address was located in the telephone book. Due to their exceptional and never failing hospitality our advice is don't miss calling on **Carlys** and **Frank Kurtz**. You will receive a most friendly welcome, relax in a most enjoyable outdoor living room and be entertained by the finest Florida vice-president that the class has ever had. . . . Under the heading of "Blue Chip Broker," the magazine, *New England Pioneer*, for February carries a full pencil sketch of **Parke Appel** describing his retirement job as preparing clients for retirement. **Parke**, an investment counsel and broker with **William H. Coburn and Company**, maintains close, constant supervision over the accounts of clients to preserve capital and enlarge principal and income. He advises the purchase of stocks for Christmas presents as well as the conservative policy of hedging against infla-

tion by owning land. **Parke** and **Madelaine** spend a great deal of time gardening out in Dover but also enjoy entertaining classmates and playing bridge. . . . We are glad to receive clippings about **Horace McCurdy** from **Dale Spoor** of Richmond, Va. The banquet that Seattle gave for **Horace** and **Katy** must have been a most happy affair. . . . More clippings are also acknowledged about the retirement of **William W. Freeman** and his new career in Andover teaching sixth grade arithmetic and seventh grade Latin. . . . Also received new notes regarding the **Theodore M. Matson** award of the Institute of Traffic Engineers to our own **Nathan Cherniack**.

We are more than delighted to receive a letter from **George R. L. Hopkins** of Orleans, Mass., as follows: "In your February, 1965, notes, for which we thank you, I read about a few fellows I remember—or can't forget. I think it was for the last half of 1962 that there were three 1922 retirees living on or near Tonset Road in this small town, famous for being my birthplace. Besides myself, there was **Chester Greening**, now, it says here, of Westport, Conn. I don't know what the beachcombing laws are in Westport, but in Orleans non-natives must have a license. I warned **Chet** about this, but he ignored me, so our police quietly but firmly escorted him and frau to the extreme southwest corner of town. . . . The other one was **Clarke Turner Harding**, once of Medfield, who ran a couple of Jersey refineries into a couple of piles and then bought a place below me, with a gorgeous view of the Atlantic and a spanking breeze, both northeast. Suddenly he decided to move to North Chatham—maybe he heard I had a crush on his charming wife, **Martha**. In spite of all I could tell him about Chatham fogs, he went ahead and built himself a shack over there that rambles all over the place. His builder, who keeps in close touch with **Attu** and knows his fogs, was fortunate enough to have three good days last fall, when the shingling nails hit the wood instead of the fog. And then I note that **C. George Dandrow** has bought himself an old hut over in Chatham and is thinking of putting on some **Johns-Manville** shingles where it leaks. The real estate broker who worked on him is a brother of the builder mentioned above. However, I am glad to note that **George** will be near the Chatham Bars golf course—Eastward Ho is much too long for him—so that he can practice on that drive. When I played with him on our 25th I found to my horror that his drives just equalled his hammer throws—180 feet, more or less. . . . You mentioned another chap, name of **Oscar Horowitz**. The alphabet being set up before my time, I used to have to sit side of him in the general lectures—like **Talbot's** chemistry. I note his real hobby is golf but his real love is photography. Some time ago you reported that **Oscar** had made a hole-in-one at some midget course near Boston. Now he is trying for no. 2 on a real course. I suggest he stick to his box camera and to checkers. (That is my revenge for his beating me at checkers at Camp Machias.) As far as

my golf game goes, I gave it up in 1958. To tell the truth I got kind of bored with the game—six, repeat six, holes-in-one on regulation courses, and silver sulphide cups all over the place. Like Sam Snead I had won everything but the U. S. Open. Don't tell this, but the real reason I quit was because I lost my ball. . . . Glad to see **Eric Hodgins**—he sat on the other side—is writing again and has sold his Marlboro stock. I always think of him when I have a dizzy spell, which is too often. . . . I am writing at microscopic speed a History of Orleans. When it finally appears, that is, if I live long enough, it will be by far the best history of this town ever written. Unless some other guy works faster at this first history. To the few 1922 geologists who will read this: greetings—and the news that I recently found in an old book store a copy of that rare pamphlet "Geology of the South Shore of Massachusetts Bay" by ex-professor Hervey W. Shimer. He still lives in Hingham, active at 93. That deserves an ending in Latin, but I don't know any. Remember, Whit, you asked for this—or did you?" Your secretary did.

Congratulations to **F. Marion Banks** for his induction as president of the Los Angeles Chamber of Commerce at the organization's 77th annual banquet attended by a thousand business, civic and community leaders. Marion is president of the Southern California Gas Company and has lived in this area for many years. . . . **Charles E. Brokaw** of Denver represented M.I.T. at the inauguration of the new president of Loretto Heights College in Colorado. Chuck represents M.I.T. and the Class of '22 in the area. . . . We note that **Lawrence Gentleman** has moved from Watertown to Bethel Park, Pa. . . . The sympathy of our class is extended to the family of **Arthur Pew, Jr.**, of Bryn Mawr, Pa. Art was a director of the Sun Oil Company, and a prominent yachtsman and horseman. He was instrumental in developing the mercury vapor process used in the manufacture of lubricating oils. He also worked with the developer on the Houdry process for producing gasoline through catalytic refining. . . . Our sympathy also goes to the families of **Charles Starbuck, Jr.**, of Philadelphia and **John J. Donnelly**, of North Abington, Mass. . . . The final reminder is for the usual Class of 1922 reunion on Alumni Day in June. See you then.—**Whitworth Ferguson**, Secretary, 33 Ellicott Street, Buffalo, N.Y. 14203; **Oscar Horovitz**, Assistant Secretary, 33 Island Street, Boston 19, Mass.

'23

A letter from Henry B. (Chick) Kane, Director of the M.I.T. Alumni Fund reminds us, "As you are well aware, one of the most important sources of income of every college comes from the thoughtfulness of those who have made provision for it after their deaths. In this M.I.T. is no exception. To seek such gifts actively the Institute has established the post of Institute Estate Secretary. It is held by D. Hugh Darden. The Alumni Associa-

tion has been asked to co-operate by appointing class estate secretaries, and this has been agreed to. As with class agents, they are not class officers but association appointees." The purpose will be to publicize the many ways of deferred giving at the class level and to initiate contact with Mr. Darden's office. **Phil Coleman** has accepted this post for 1923. . . . The News-Tribune, Waltham, Mass., reports that **David W. Skinner**, vice-president of the Polaroid Corporation of Cambridge, has been elected a trustee of Andover Newton Theological School, Newton Centre, Mass. Mr. Skinner has been in charge of all manufacturing for Polaroid since 1946, with responsibility for the rapid expansion in production of Polaroid Land cameras and films. Mr. Skinner is a member of the Cambridge and Waltham Chambers of Commerce, a director of the Newton Y.M.C.A., the advisory Council of Nichol College, the American Management Association and the M.I.T. Alumni Council. He is also a division leader in the Boston leadership gift effort for Andover Newton's \$4 million long-range development program. Mr. Skinner is a member of the Union Church in Waban.

The stockholders of Baird-Atomic, Inc., of Cambridge and Waltham have elected **Hugh S. Ferguson** to the board of directors. Mr. Ferguson is president of National Research Corporation and a member of the board of directors of several firms including the Norton Company, the Foxboro Company, Harvard Trust Company, and Miniature Precision Bearings, Inc. He is a member and past president of the M.I.T. Alumni Association and a member of the Commercial-Merchants Club of Boston and the Newcomen Society. . . . A note from **Herbert L. Hayden** indicates that he and Mrs. Hayden had plenty of sun, swimming and tan in the Caribbean area last fall. He reports having had a good winter and that he still keeps in shape by playing ice hockey about twice a week. . . . **Dale E. Washburn**, vice-president and commercial manager of the Boston Edison Company, has been elected president of the Electric Institute for 1965. Mr. Washburn joined Boston Edison in 1925 as a sales engineer. . . . Additional information about the death of **Robert Johnson Hull** on February 18, 1965, has been received. A former resident of Leominster, Mass., and one of the nation's best known petroleum executives, he apparently suffered a heart attack while shoveling snow around his car, at East Colrain, Mass. He had been living in East Colrain since 1963 when he retired as president of Cities Service Oil Company, Ltd., Toronto, Canada. He was a graduate of Leominster High School and M.I.T. and a member of Beta Theta Pi fraternity. He was named president of Cities Service Petroleum, Inc. of New York and the Imperial Bank of Canada. During World War II he was assistant director of the United States Marketing Petroleum Administration for war. His affiliations included The American Management Association and the 25-Year Club of the American Petroleum Institute. Mr. Hull was the son of the

late John C. Hull, former principal of Leominster High School and speaker of the House of Representatives, and the late Harriet (Johnson) Hull. He leaves his widow, the former Eleanor Walker of Norfolk, Va., two children, two brothers, a sister, a grand-daughter and several nieces and nephews.

The Boston Herald of February 12, 1965, reported the death of **James Clapp**, of 354 Gulf Boulevard, Englewood, Fla., and Cambridge, Mass. James worked for 30 years for the General Radio Company of Cambridge as an electronics engineer, developing broadcasting equipment. He retired in 1958. He also had been radio editor of the Boston Transcript and engineer for radio station WBZ. He received a first class commercial radio license at age 15. In World War I he served as an ensign in the navy and in World War II he worked on frequency measuring equipment for the navy. He leaves his wife Kathryn Clapp and three brothers. . . . The M.I.T. Alumni Make News reports that **John W. Beretta** has taken office as president of the National Council of State Boards of Engineering Examiners. A recent letter from John reports that he had a visit, February 24, from **Jack Preston** who for the last 25 years was with the Cleveland Cliffs Iron Company as general manager of their Electric Power division in Ishpeming, Mich. Jack retired last October and has moved to Westport Point, Mass., to be near his son, John, also an M.I.T. graduate, who lives in Needham, Mass. John (Beretta) reported that he and Jack were friends and classmates when they both attended the University of Texas prior to their enrollment at M.I.T. Jack was passing through San Antonio following a winter's vacation in Phoenix, Ariz.

Recent letters from **Walter E. Richards** and **Howard F. Russell**, your vice-president, remind us that time is marching on. They are both members of the Order of Daedalians, an organization whose membership is drawn from that small group of World War I heavier-than-air pilot officers known as the Air Corps, U.S. Army—the forefather of the U.S. Air Force. Howard says: "We started the (charter) Minuteman Flight of the Order of Daedalians at L. G. Hanscom Field February 4." Walter enclosed a brief story of the organization which is most interesting. Any of your former W W I pilots who desire further information about this organization should write either Walter or Howard. . . . The following changes of address have been reported: **Joseph R. Maxwell**, 266 Bowman Avenue, Merion Station, Pa. 19066; **William L. Searles**, 16866 Acebo Drive, San Diego 28, Calif.; **Robert J. Hull** (deceased), R.F.D. 1, Box 126, Colrain, Mass.—**Forrest F. Lange**, Secretary, 1196 Woodbury Avenue, Portsmouth, N.H. 0381; **Bertrand A. McKittrick**, Assistant Secretary, 78 Fletcher Street, Lowell, Mass.

'24

Either you fellows haven't been making much news or, if you have, you've kept it

very quiet. . . . In mid-March there was a little gathering at the M.I.T. Faculty Club, called by Class Agent **Frank Shaw**. This was for the purpose of doing a bit of correspondence with some of the members of the class who have been delinquent in giving to this year's Alumni Fund. **Russ Ambach**, **Ray Lehrer** and your secretary joined Frank. We had our own reunion in miniature. . . . Recently M.I.T. established the office of Institute Estate Secretary for the purpose of encouraging deferred gifts. The Alumni Association is cooperating by appointing Class Estate Secretaries, and **Hood Worthington** has taken on the job for 1924. You'll hear from him one day soon, or maybe, by the time this column appears, you already have. . . . In February there was a big dinner in Los Angeles highlighting their Engineers' Week. **Frank Reeves** was there, and when he went through the reception line who should he meet but a member of the Class of '23, **Julius A. Stratton**. President Stratton introduced Frank to a couple of his cohorts, **Deans Wiesner** and **Brown**. They were out there visiting Cal Tech. . . . There was another important engineering meeting at the N. Y. Alumni Center at the end of March. This brought down some of the Institute's top civil engineers to bring their conferees up to date on the revolution they have wrought. Chairman of the committee was **Bill Correale**, and he had **Ed Sheiry** working with him, among others.

Recently your secretary, in his capacity as Alumni Fund director, attended a Regional Fund meeting in Chappaqua, N. Y. One of the vice-chairmen present was none other than **Ronald Forsyth**, a Course VI graduate. He is with the Otis Elevator Co., in New York City. . . . From Atlanta, Georgia, we received the sad news that **Herbert F. Loring** died in February. Herb was a chemical engineer, and had been in the plastics business in recent years. He retired last July. . . . That does it for now. Hope to see many of you on June 14, Alumni Day at M.I.T. —**Henry B. Kane**, Secretary, Room E19-439, M.I.T., Cambridge, Mass. 02139.

'25

The 40th Reunion is almost with us; but if you have neglected to inform us of your plans to be present at all or any part of the activities, there is still time to make reservations. Your secretary is available by telephone or letter at M.I.T. and will be only too pleased to see that you are properly cared for. . . . These notes have to be prepared well in advance of publication of *The Review*, and we will be unable to reach you through the notes much in advance of the reunion, starting on June 11, in the next issue of *The Review*. If you have not already made your contribution to the 40th Reunion Gift, won't you send your check today to either **Sam Spiker**, G. R. Kinney Corporation, 221 Park Avenue South, New York, N.Y. 10003, or to **Mac Levine**, Webster Spring Company, Web-

ster, Mass.? We hope that 100 per cent participation can be noted at Alumni Day on June 14. . . . Many of us who are working on the reunion receive extra dividends in occasional messages coming from members of the class. A nice letter was received from **Aleck Ulmann**, president of the Allied International Corporation of 230 Park Avenue, New York City. He indicates that much as he would like to attend the reunion, the dates conflict with the holding of the Le Bourget (Paris) Aeronautical Salon which he has to attend every other year.

It is a well-known fact that we have many alumni listed with the Class of 1925 who attended M.I.T. for a relatively short period. That many of them enjoyed this experience is borne out by a nice note received from **Mrs. Ellen P. Rieg** of Orange, Mass., who took a 10-week course in public health nursing as part of her curriculum at Simmons College back in 1925. She and seven others used to cross the Charles twice a week for this particular subject. Mrs. Rieg indicates that she appreciates being kept on the class rolls and wishes us every success in our 40th Reunion. . . . Within the last month, **Ed Booth**, who was in town for a series of meetings at M.I.T.'s Endicott House in Dedham, dropped in for a short chat. Ed still hopes to make the reunion, but has a series of conferences slated early in the first week of June which makes scheduling a major problem. . . . Congratulations are in order for **Arnold Bailey**. This morning's Boston Herald carried his picture and noted that he had recently received one of the Fellows Awards of the Boston Section of the Institute of Electrical and Electronic Engineers. Arnold is with the Mitre Corporation in Burlington, Mass., and hopes to be with us for part of the reunion.

The Springfield and Worcester, Mass., newspapers have recently carried articles regarding **Harold H. Belcher** who has retired from the Rodney Hunt Machine Company of Orange where he was the firm's technical director. Harold has been with Rodney Hunt since 1943, serving as chief engineer, manager of research and development, and as vice-president and director. He has made many contributions to the company's product development and has had 15 patents assigned to him. He and his wife plan to continue their retirement in Orange, Mass.; and best wishes of the Class of 1925 go to him! . . . The many reunion notices have brought information regarding the deaths of several of our classmates. Through the United Aircraft Corporation in East Hartford, Conn., it was learned that **Thomas A. Hayes** has passed on but no information as to the date of his death was given. . . . **Joseph R. Tierney**, whose last address was West Roxbury, Mass., died on October 25, 1960. . . . **Garibaldi A. Barberi** of Barre, Vt., died in July of 1964. . . . **Gaston R. Laurion** of Montreal, Quebec, passed away on November 14, 1964. . . . From the Boston newspapers it was noted that Commander **Albert G. Merrill**, U.S.N. Retired, died at his home in West Roxbury, Mass., at the age of 83 on December 20, 1964. Commander Merrill was born in Fairfield,

Maine, and studied naval architecture at M.I.T. with the Class of 1925. He had many assignments to Navy Yards on the East Coast and Cuba; and during World War II, he directed the construction of many destroyers at the Boston Navy Yard. He retired from the Navy in 1946. —**F. L. Foster**, Secretary, Room E19-702, M.I.T., Cambridge, Mass. 02139.

'26

There seems to be a conspiracy afoot to prevent your secretary from writing class notes at Pigeon Cove. This month I am once again writing from home. The only reason I'm going to tell you what happened is so that if it ever happens to you, you won't be as scared and bewildered as your secretary. A week ago I awakened in the wee hours with the bed spinning end to end at a fantastic speed. I didn't know what to think—it was weird and scary and I got the lamp lighted and called Ruth who looked up "dizziness" in a 60¢ paperback doctor's book that I had bought for amusement. It sounded as though I had astronauts' disease and that's just what the doctor has diagnosed. For three days you don't move your head ¼ inch, right or left, or you spin again. Right now I'm holding the block of paper up in front of my face because I cannot drop my head. Supposedly a virus of the inner ear, you take dramamine-type pills to gain stability and wait for it to go away like any other virus. Having said this much don't expect a lengthy issue of Notes. . . . Fortunately a couple of classmates again came to the rescue and we are truly grateful. From **Argo Landau** in St. Louis, comes the following: Dear George: This is my first day back at the office after a two weeks' vacation in Honolulu. I had a very nice restful time which is what I wanted. I too, am pleased with the Class Gift idea and have been working on it here. My business at Royal Bond has been going very nicely and, since I last saw you, we also started a little machine shop where we make accessories. This is a small operation employing seven men but it has been a good bit of fun—also quite profitable. Edna is still going great guns with her photography and doing better than ever. I am looking at two beautiful 16" x 20" color prints made from her 35mm. slides which are hanging on my office wall. She now is specializing in travelogs and won the National Travelog Contest at the Photographic Society Convention last year. Since we were in Boston, she has been to Japan and Far East twice, once around the world, a big trip to the Mediterranean and all the Greek Islands, and in December returned from the Middle East, where she was in Jordan, Syria, Lebanon and Egypt, where she went all the way up to the temples at Abu Sinbel which will soon be flooded. Such long trips are not for me. First of all I have had too much surgery and get too tired from such strenuous traveling so I have been sticking to American territory such as the Virgin Islands, Hawaii and various parts of the

U.S.A. We had to move our factory last year and that was real horror. It cost us a fortune and was a terrific amount of work but we have a really nice place now, 50,000 square feet of floor space on about an acre of ground, which provides us with plenty of manufacturing space for both companies, nice office and better laboratories than we had before. Best regards to you and Ruth in which Edna joins me. Sincerely, Argo." Thanks Argo, we will be looking for you a year from June!

Now here's our annual letter from the retired engineer from Denver who has really figured out a way to enjoy life—it really drips from him as did something else from his suitcase at one reunion when the airlines put his luggage in a non-pressurized compartment of the plane and caused a bottle of Tequila to break. Let's see what he is now up to. **Ben Howe** says: "Dear George: I'm here on the beach with two other men on a fishing trip for a few weeks. We are living in my 28 foot travel trailer. We cook our own fish and shrimp every day. My wife is in Tucson where we have a 10 foot by 52 foot mobile home. We plan to go to Mazatlan next March and fish for marlin. I got one last January there that weighed 80 kilos. I have a suggestion regarding our 40th Reunion. Let us not get frozen out on the Cape. What about the Bahamas or my choice is Jamaica, certainly not further north than St. Augustine, Fla. And let's make it for a month's duration before commencement and optional for our wives, for many would like to go. We are getting older and this is our only 40th. I've been retired five years now and I've lived it up so no one can take that from me. Best personal regards, Ben Howe." Ben—your ideas are wonderful, but what about the rest of us? We are not as smart as you have been for five years. Guess you will have to come to the Cape but how about bringing along some of your color slides so we can see first hand this exotic Mexican fishing port. We hope you will not be too disgruntled with your secretary for this abbreviated issue of notes but for a while there was some question as to whether or not there would be any May issue. By the time you read these, we hope to be soaking up some of that sunshine such as Ben Howe talks about—perhaps in the Bahamas. Meanwhile keep coming to the rescue with these most helpful and most appreciated letters.—**George W. Smith**, E.I. DuPont de Nemours & Co., Inc., 140 Federal Street, Boston, Mass.

'27

One of the most deserved vacation trips we have heard about in recent years is now being enjoyed by Ann and **Joe Harris**, our secretary. Joe, now retired from Shell Oil Company, has been looking forward to this leisurely trip through the sun-drenched countries of the Mediterranean for some time, and rather than leave this column blank, he asked me to try to get some notes together every

month for The Review. He has reported from Algeciras, Spain, and gives a Sicilian address for his next stay. Before he left the U.S., he had a card from **Ed Damon** whose travels were taking him through Mexico and Guatemala before returning home to Oklahoma. . . . **Ralph B. Johnson** has accepted appointment to the board of directors of the Stanford Research Institute. Ralph who lives in Hawaii, became president of the Hawaiian Electric Company in 1959 and is also a director of the Bank of Hawaii, the Oahu Railway and Land Company, Molokai Ranch, Ltd., and the Standard Oil Company of California. . . . The feature section of the Worcester (Mass.) Sunday Telegram in January ran a three-page story on classmate **John C. Parker**, and we quote: "Besides being an architect, engineer, artist, lecturer and authority on colonial houses, he is a ghost hunter, possibly one of the best known in America today. While ghost hunting is only a hobby, he pursues it seriously. When he hears about a supposedly haunted house, he's off to investigate." The article told of a few of John's experiences in some of New England's old haunted colonial structures. Currently, beside being an active architect in Springfield Mass., he is wrapping up his ghost findings in a book on the subject. . . . **James K. Small** of Summit, N.J., has been named coordinator of licenses in the newly formed Patents and Licenses Division at Esso Research and Engineering Company. Jim received his A.B. from Mercer University, his S.B. with our class at Tech, and since then has been awarded a doctorate in jurisprudence from New York University. . . . A few years ago, **Don Spitzli** moved his base of operations from New Jersey to a delightful old home he had always owned and summer-occupied in Walpole, N.H., from whence he carries on a very active consulting business in textiles and plastics. Last fall he was elected to the New Hampshire legislature. Congratulations from '27. How many other politicians can the class boast? Please write details to **Joe Harris** on his return.

Edward Durell Stone has been selected by the New Jersey Highway Authority as the architect for the proposed amphitheater and cultural center in the Garden State Parkway's Telegraph Hill Park in Monmouth County. He sees in this amphitheater a possible prototype which might be adaptable for use in shopping centers throughout the nation where parking areas and utilities already are available and he believes other states will set up similar centers. . . . **Bud Fisher** is doing a tremendous job as chairman of our 40th Reunion Gift committee and we all should make a big effort to help. Adding in the last two years' gifts to the Alumni Fund and the Second Century Fund through February, our total accumulation towards our 40th gift stands at \$212,000. We've got to do some real plugging to reach our half million goal by June, 1967. Assisting Harold (Bud) Fisher is a worldwide general committee of 79 classmates. Since this group was organized, I have talked personally to a few of its members, Bill Taggart, Dick

Hawkins, Joe Burley, Bob Bonnar, Joe Harris, Dick Cheney, and Dike Arnold and had a letter from Carlton Davies down in Charleston, S.C., and they are all enthusiastically in favor of this 40-Year Gift, and working for it. Now let's all of us get into it—feet first. As for the reunion gathering itself, no place has been definitely selected, and where we have tried to get in, all places have been sold out, particularly on the Cape for at least the last three years. Your chairman of the reunion is now checking two new locations on Cape Cod and we should be hearing something definite from him by this June. . . . We spent a very pleasant evening with **George Houston** and his charming Mary recently. He is in excellent health and a professor of business administration at Northeastern University.

Two deaths are reported in the class which sadden my Review notes: **William H. Reed**, died in Los Angeles but we have no further details. . . . **Robert Bruce Watson** passed away suddenly on February 7, 1965, in Winter Park, Fla., after a long and distinguished career. He had retired a few years ago and lived in Orlando. We have recently received a nice note from his widow, Celeste R. Watson. . . . Our sympathies go out to the families of these fine men. Please send class news to your secretary pro tempore.—**Glenn Jackson**, Acting Secretary, Box 83, Amherst, N.H.; **Joseph S. Harris**, Secretary, Masons Island, Mystic, Conn.

'28

We learned from a release distributed by Eastman Kodak Company that **Walter Grimwood** is one of four members of the senior staff of the Kodak Research Laboratories who was recently appointed senior research associate. Walter joined the laboratories in 1928 in the physics division. He is an outstanding authority in the field of photographic and magnetic sound recording. He is the holder of several U. S. patents and the author or co-author of scientific articles relating to this field. He is active in affairs of the Society of Motion Picture and Television Engineers. Walter resides with his wife, Ruth, and three children at 2523 St. Paul Boulevard, Irondequoit, N. Y. He was born in Haverhill, Mass. . . . And we learned recently that **Graydon Smith** has been appointed corporate director of engineering of The Foxboro Company. Graydon has been a consultant to Foxboro for almost 30 years. In the newly created post, his efforts will be directed toward assuring maximum engineering effectiveness at all Foxboro-owned plants. After academic work at the Institute, Graydon joined the National Company of Malden, Mass., as a design engineer. He later formed Graydon Smith and Company, engineering consultants, serving many leading industrial firms throughout the years. In 1947, in addition to his consulting business, he organized a manufacturing company, the Graydon Smith

Products Corporation, which was purchased by Brush Instruments in 1959. Graydon, whose major consulting efforts have been in the fields of instrument engineering and designing, holds over 60 patents.

A brief item in the Hartford, Conn., Times reports that **Walcott Bissell** of Newtonton recently retired from state service after more than 29 years with the State Highway Department. A highway assistant engineer, Walcott joined the department as a member of the division of design. He transferred to the training division in 1959 as an instructor for that unit. . . . And in the Boston Herald of recent date we note a photograph of **Jimmy Cullen** with his wife and three sons. The photograph illustrated a story about Jimmy, Jr., who was shot down and rescued from the sea in a mission over Vietnam. The younger Cullen is a 1961 graduate of the U. S. Military Academy at West Point and a former Winchester High School football star. He had been serving as a lieutenant in Vietnam for the past seven months. Jimmy, as most of us remember, was a star wrestler in the lightweight class while at the Institute. He has been in the real estate business these many years in Winchester and is a former chairman of the Middlesex County Commission. . . . And **Jim Donovan** writes that he was the guest of **Bill Archibald** while visiting Pittsburgh recently. Bill is vice president of Jones and Laughlin Steel Company.

All of which brings us to the sad part of our notes. **Ralph Jope** recently forwarded a letter to us from **Al Demperwolff**, which he in turn had received from Bill Archibald: "Dear Demp: Just a short note to tell you that our old friend **Newell Hamilton** died on February 5. I had looked forward to seeing him on the night of February 1, at the annual banquet of the Engineers' Society of Western Pennsylvania. This is quite a large affair and for several years I have seen him there and had a chance to talk to him. This year I looked for him—he was listed in the attendance booklet—but he wasn't there. Yesterday I learned why. On the morning of February 1 he did not appear at the office and after failing to raise anyone on the telephone, a couple of men from the plant went out to his home. They found him in bed, unconscious. He was taken to the hospital and later moved to Pittsburgh. From what I understand, he suffered a cerebral hemorrhage and never regained consciousness. He was living alone when it happened because his wife had died early in January. I infer that his wife had been ill for several months but not longer, which would be in line with the news I had from Ham early last summer, when I saw and talked to him about the doings of his family, etc. There were two children; the older, a girl, is married and living in California and the boy is located in Minneapolis. One of my ancient relatives used to say that the surest reminder you could have of the passage of time was the death of your friends. When did we first meet Ham? 1926, as I recall. He got his M.S. in Course V in 1928 and ended his career as manager

of steel operations for Babcock and Wilcox. Oh, Course V what strange paths your children follow! Can't think of anything else to add at the moment. Best regards to Marty and to you. Sincerely, Arch."—**Hermon S. Swartz**, Construction Publishing Company, Inc., 27 Muzzey Street, Lexington, Mass. 02173.

'29

From Pennsylvania we have news from 15 classmates who have some interesting biographical sketches and personal views to express. . . . **Raymond Shriver**, retired, lives in Bellwood where he pursues his hobby as a ham radio enthusiast. . . . We note that **George Meyers** of Wyomissing has a son following his dad's footsteps at M.I.T. George is management consultant and general manager, Nuclide Corporation, State College, Pa. On life, he comments as follows: "There have been absolutely no dull moments! I never expect to have any. This is a time of tremendous opportunity. I hope each one of us as we meet our challenges will be able to work in a framework which will strengthen faith, morality and individual freedom—vital issues of these times." . . . **Philip Lamb** is general manager, Endura Products Plant, Dewey and Almy Chemical Division, W. R. Grace and Company. His hobbies include photography, gardening and travel, which is evidenced by his travels through 13 countries in Europe and most of the U.S.A. and parts of Canada. . . . In Allentown, **Roger Sykes** is associated with M.T.S. Bell Telephone Labs and continues his electrical engineering interests as a member of several electronic associations. For future aspirants in the field of electrical engineering, Roger recommends a Ph.D. in physics. . . . Pittsburgh is the home of **Milton Male** where he is resident engineer at American Iron and Steel Institute, having retired from 33 years service with U. S. Steel in 1963. His present position leaves him much leisure time to enjoy golf and travel. . . . Also in Pittsburgh, we find **Hazen House** where he is senior electrical engineer, Aluminum Company of America, and **Bion Francis** who is manager of insurance and benefits, Crucible Steel Company of America, and a vice-president of Southeast Casualty Company Ltd. Bion has an interesting hobby of collecting ancient Greek coins and expects shortly to reach the fame of Rembrandt and Van Gogh in his pursuits as an artist.

Charles Meadows of Schwenksville is president of Medcraft Electronic Corporation and has an enviable avocation of flying, being the owner of a Piper Apache, an airport and hangar. . . . A fine background of engineering positions with several companies led to the establishment of his own engineering and consulting firm for **Ogden FitzSimons** of Kimberton where he is president of Engineering Associates, Inc. On his small farm, Ogden farms to maximize the pheasant crop for hunting and spends his leisure time fishing, hunting, and dab-

bling in real estate. . . . **Leonard Peskin's** personal account shows that he remained at Tech as an instructor after graduation where he received a doctor of science degree in 1936. Having worked with American Steel and Wire, with the Office of Scientific Research during the war, and Kellett Aircraft, Len formed Thermal Research and Engineering Company, Conshocken, in 1948, creating an international operation in combustion and heat transfer for industry. We understand you will be taking a trip around the world in April and May, so we will be looking forward to hearing all about it, Len. Len also reports seeing classmate **Don Funk** occasionally and that he is vice-president of Wanamakers department stores. . . . Residing in Norristown is **George Armstrong** where he is employed at Livingston Electronic Corporation doing research in non-aqueous high energy primary batteries for NASA.

Media, Pa., is the home of **Ralph Vezin** and he is employed in proposal engineering, Hydraulic Turbines, Baldwin Lima Hamilton Corporation. . . . In Philadelphia, **Donald Hibbard** is a church executive of the United Presbyterian Church and an executive vice-president of the Board of Pensions, which he says is the "biggest church pension organization in the world today with assets over \$200,000,000 and investment problems coupled with actuarial ones." . . . **Constantine Monsul** of Upper Darby writes that he is chief electrical engineer, Chas. S. Leopold Inc., Philadelphia. His interests include heading an engineering committee for the erection of a new Greek Orthodox Church in Upper Darby. Constantine worked in Greece for over 15 years after leaving Tech. . . . A senior mechanical engineer at E. I. du Pont de Nemours Company, **Raymond Delano** resides in Nottingham where he lives on a 106-acre farm and is restoring an historic house which was built about 1750. . . . It was a nice surprise to receive an answer to the questionnaire in the mail the other day, not having received any for the last several months. **Bill Spencer Hutchinson** wrote from Grand Junction, Colo., where he is director, Source Material Procurement Division, Grand Junction Office, U. S. Atomic Energy Commission. So, you see, it's not too late to make the '29 Class News—**John P. Rich**, Secretary, 67 Berkeley Street, Nashua, N.H.

'30

Supplementing the comments in the March and April issues concerning our 35th Reunion to be held at Oyster Harbors on June 11-13, **Joe Harrington** has now appointed the following sub-committee chairmen: Treasurer, **Ed Kingsley**; Publicity, **Bob Reynolds**; Sports, **Yicka Herbert**; Local Tour, **Al Burling**; Banquet Speaker, **Jack Latham**; Music, **George Gassett**; Banquet and Clam Bake, **Greg Smith**; Nominations, **George Wadsworth**; Registration, **Parker Starratt** and your secretary. If you have any sugges-

tions to offer concerning the foregoing matters, I suggest you send them directly to the appropriate sub-committee chairman. In respect to the Alumni Day program on Monday, June 14, Joe has indicated to the Institute that we may require on-campus accommodations for as many as 40 people. Hence we hope that many of you will plan to stay over for the Alumni Day activities in Cambridge. . . . Once again the M.I.T. luncheon for those attending the TAPPI convention provided your secretary with an opportunity to have pleasant chats with a number of our paper-oriented classmates. This year's luncheon at the N. Y. Hilton on February 24, was attended by Fred Holt, Bob McCarron, Les Steffens and Tony Savina. Ralph Peters was busy elsewhere with official duties, but joined us briefly after lunch. . . . As most of you will doubtless have read by the time these notes appear, **Greg Smith** has been nominated for the vice-presidency of the Alumni Association. I am sure that we all wish him well in his new job. . . . **Bill Wye's** recent report conveyed the information that he is supervising the examination of patent applications as a primary examiner in Group 380 of the Patent Office, and that he has recently seen **Jim George** and **Ernest Reisner** at M.I.T. meetings in Washington. He also gently chided me for my failure to provide any information concerning the reunion as of mid-February. I think that by the time he reads these notes he will have to agree that this delinquency has now been expiated. . . . **Morris Young** practices ophthalmology here in New York and is associate professor and associate attending in ophthalmology at N. Y. Polyclinic Medical School and Hospital. It appears that his principal hobby is "magic" which he has pursued with considerable intensity over a period of years. His published books include: "Hobby Magic," 1950 (Trilon); "Houdini on Magic," 1953 (Dover); "Bibliography of Memory," 1961 (Chilton); "Houdini's Fabulous Magic," 1961 (Chilton); "How to Develop an Exceptional Memory," 1962 (Chilton). He and his wife Chesley have recently co-authored a book on reading that is now in press. In 1955 the Youngs donated a collection of 12,000 volumes on the subject of illusion practices to the Library of Congress and they have established similar collections at the University of Texas and University of California at Berkeley. The Youngs have two children: daughter Cheryl who attends Hunter High where she is in the Honor Society and son Charles who attends Joan of Arc Junior High. Charles is editor of the school newspaper, plays in the orchestra and band, is captain of the fencing team and at the tender age of 12 authored a book entitled "Chuck's Wagon of Verses." The Young family jointly wrote a N. Y. World's Fair song entitled "Come on! Come to the Fair" which has been published and recorded.

Joe Stevens has been elected board chairman of J. T. Baker Chemical Company. He joined Baker Chemical as director of organic research in 1944 and has served as technical director, vice

president in charge of research, executive vice president and president. During his service as president he "piloted the company through a period of substantial growth and his election as chairman was accomplished to enable him to devote more time to the firm's diversification and expansion program both in the United States and abroad." . . . **Max Wheildon** is a senior research engineer with the Norton Company in Worcester, Mass., and specializes in flame-sprayed ceramic coatings and wear-resistant ceramic material, e.g. tooling. He is perhaps best known for his contributions to the development of ROKIDE ceramic coatings which have found numerous applications in space technology. He has also made important contributions to the development of ceramic tooling, and has authored numerous papers and been granted a dozen or more patents on these and related subjects. The Wheildons have three children who attend public school in Worcester, and all members of the family appear to be sports-minded. They maintain a cabin in Pinkham Notch for skiing during the winter and have a summer lodge on Sawyer's Island, Boothbay Harbor, Maine, which they use as a base for camping trips, sailing and other outdoor activities. Max says he gets back to the Institute frequently in connection with the Industrial Liaison programs in which Norton participates. . . . **Frank Fahnestock** has been promoted to engineering consultant in the Socony Mobil engineering department. After obtaining his M.S. at M.I.T., Frank went to work for Mobil at their Paulsboro, N. J., refinery. He supervised the design and start-up of the first Thermofar Catalytic Cracking Unit in the oil industry and the expansion of Mobil's T.C.C. operations during World War II. He is patentee of numerous cracking patents.—**Gordon K. Lister**, Secretary, 530 Fifth Avenue, New York 36, N. Y.; Assistant Secretaries: **Charles Abbott**, 26 Richard Road, Lexington 73, Mass.; **Louise Hall**, Box 6636, College Station, Durham, N. C.; **Ralph Peters**, 16 Whitestone Lane, Rochester 18, N. Y.

'32

Vice Admiral **Seldon B. Spangler** has been named chairman of a new subcommittee of the U. S. Chamber of Commerce Committee on Science and Technology. Purpose of the subcommittee is to study roles and missions of government laboratories and to prepare advisory recommendations to Congress and to the President's Science Advisory Committee. Seldon is director of research for the AiResearch Company and lives at 6112 N. 59th Place, Scottsdale, Ariz. . . . **Maurice H. Berins** has been named a vice-president of G. Fox and Company in Hartford, Conn. After completing graduate work at M.I.T., Maurice joined G. Fox 35 years ago. He became successively service manager, assistant credit manager, employment manager, personnel director and is now store superintendent.

He has been active in the Hartford Community Chest, Chamber of Commerce, State Advisory Committee for Distributive Education, and the board of Mt. Sinai Hospital. . . . **Libero Cappabianca** has been appointed department chairman of the Haverhill Trade School machine shop department, having taught at the Trade School for 25 years. A native of Haverhill, he is married to the former Theresa Perdozani and has a son Anthony. . . . The National Association of Home Builders arranged a two-day workshop conference in Washington, D. C., last November to explore the problems of urban living in the 1960's. Among the specialists from industry, universities, architecture, and the church invited to discuss the increasing concern over the aesthetic and physical aspects of urban living was our **Albert Dietz**.

William J. Hallahan, an Associate Engineer with Fay, Spofford and Thorn-dike, Inc., Boston, has been elected a director of that firm. He now specializes in the co-ordination and supervision of the design and construction of large and complicated projects. One of these was the conversion of Goose Air Base, Labrador, from a wartime ferry base to a modern military aircraft base. Other projects have been the basic design of the inner belt highway in Charlestown and Somerville, Mass., and site improvements at Logan Airport, Boston. . . . **Donald B. Gilman**, President of Warren Pumps, Inc., Warren, Mass., has been named director to the advisory board of the North Brookfield office of the Worcester County National Bank. Don is also a trustee of Warren Savings Bank and a corporator of Ware Savings Bank. . . . **Joseph L. Richmond** has been advanced to assistant manager of the Chambers Works' Miscellaneous Manufacturing Department of the DuPont Company. He has been general superintendent of the department since 1962, having started with DuPont in 1935. He is a member of the New Jersey State Board of Education, the Board of Managers of Salem County Memorial Hospital and the American Chemical Society. . . . **Richard M. Stewart**, President of Anaconda American Brass Company, Waterbury, Conn., was elected president of the Waterbury Hospital. He has been a member of the hospital's executive committee since 1959 and is a hospital trustee. . . . **John F. Crowther** has been appointed general manager of Northwest Chemical Company, Detroit, a unit of the Chemetron Corporation. He was formerly executive vice-president of Turco Projects, Inc., of Los Angeles, Calif. He is the author of a number of articles published in business and technical magazines and holds several patents on chemical processes. Northwest's business is in the development and marketing of products and processes for preparation of metals prior to finishing operations including plating, painting, and anodizing. John is married and has three children. . . . **Richard M. Cochrane** is research-design engineer at Gilbert and Barker Manufacturing Company, Springfield, Mass. His wife is the former Marjorie Moulton, of Melrose, and they have two children. Richard is

seeking election to the School Committee of West Springfield, having served as member of the Finance Committee for the past three years where his subcommittee assignment was analyzing School Department budget requests.—**Elwood W. Schafer**, Secretary, Room 10-318, M.I.T., Cambridge, Mass.

'33

Now, fellows and gals, we have a serious matter to delve into this time. Recently, I had a letter from an anonymous classmate, who, I am afraid will remain so. But he did bring up one point that is worth discussion. He asks why these immortal notes are, for the most part, written of our more famous classmates: men and women who make the news, to the apparent exclusion of common man in our list of members. So, at the risk of appearing repetitive, I will go over this once again. Each month, the alumni office sends us the press clippings that have accumulated since the last issue. These I am forced to condense, as the Review is not big enough to quote them in full. The only other source of news of interest is the personal letters from the boys themselves. What few I get of these have to be expanded; I think for obvious reasons. I want the personals to look as big as they can be made, and, the clippings, to a large extent, are somewhat repetitive as the same names appear very often, which is natural. So, one may see that the fellow who wishes me to figure out his identity has a point. Fellows, 90 per cent of these notes would be made up of personals, if the boys would only come through and tell me what is happening in their daily lives. I am convinced that were I to get 8 or 10 personal letters each month for a few months, the mere mention of their names would encourage their former intimate friends to come through. The regional meetings, sponsored by **Ed Goodridge** are only a part of an overall plan to stimulate personal interest in one another. We will play some golf, see a few old pictures (if I can find them), and hold a few separate, and joint bull sessions: all purely social, no business, no drum beating for this fund and that. That, fellows, is my speech for the day.

I think that I mentioned that I intended to go on a People to People Goodwill Tour of South America. So, worse luck, I didn't make it; I got the flu just as I was packing the bag. Then, within a day, who phones up from New York? **Ed Goodridge**. He inquired about living space near Pompano Beach, and Leona gave him what he needed, and within a day or so, Ed showed up with Isabel, and stayed ten days, and then they took off for Marathon (Fla). We expect them back. The man said he had gotten a little tired and needed a vacation. The way he works, I can believe it. He had little news. We did, however, cover the Chicago Regional, which is his pet project, at the moment. Your president and Isabel look fine. I do hope that Ed feels as fine as

he looks. . . . It is now ten days later and we have just returned from New York City, after having attended the Oceanographic meeting at the M.I.T. Alumni Center. This will be written up elsewhere, I expect. The Institute can use more members from outside of the New York Metropolitan area, and, these meetings are well worthwhile. Anyone from way off who visits New York might arrange to do the visiting at the time of these meetings. That is what I do. Besides myself, there were four classmates present, and we had dinner together: **Tom Chadwick**, Mrs. Chadwick, and their grown son (Tom lives in Newburgh N.Y.), **Dr. and Mrs. Bowles**, and their young son; **E. J. Sieber**; and **J. Mason Culverwell**. Mrs. Chadwick was greatly interested in my claiming Exeter as my home, as she is interested in the Society of The Cincinnati, the home base of which is Exeter, where the society maintains a building and home. My son is eligible for membership, through his mother, but, claims he is not old enough, as yet.

I have a rather long note from **John King** of Cleveland, with the Master Builders Company. John asks that I mention a meeting of the A.S.C.E. in St. Louis, June 16 through 18 and specifically, the concrete arm of the business. John is chairman of the meeting, and the general subject is "Quality Control in Engineered Construction." John is active in the Cleveland and Ohio Societies of Professional Engineers, and is vice-president of the Ohio Group. Also, he is a grandfather. It is fortunate that becoming a grandfather is painless, or we wouldn't have so many. So, you construction civils please write to John, above company, 2490 Lee Boulevard, Cleveland, Ohio, 44118, if you need information on the meeting. . . . **Ferd Johnson** comes through with a letter and it is quite newsy. He is product manager of Whitin Machine Works, Whitinsville, Mass. Much moaning: no ski winter yet. From Florida I can surely offer my whole sympathy. Ferd has a vacation home in Washington, N. H. I know that country, and used to hunt there. It is a great old countryside, but nobody lives there; wild as all get out. Ferd, it seems, has a farm, and has a notion to stock it with beef animals which, (God bless him) is right down my alley. I love a customer, as who doesn't? Ferd attends the Worcester M.I.T. meetings, when there is one, and there have been none. I will rely on Ferd to report on any classmate who happens to stray into one of those sort of irregular meetings.

Dick Warner from Elizabeth, N.J.; congratulates me on the excellent notes in the February issue. I am pleased that the February try was worth mentioning. Perhaps I should strive to make them all excellent! Dick brings us up to date: 33 to 38 in the family business, Frazer and Company, written up twice in Fortune. Worked as a cog in the: "very efficient machine called SONJ." Now, Dick, what is it? He retired at 55 after 17 years with SONJ, and is selling the family home in New Jersey and moving to the Cape (Cod). He has four children, all married except Ann, who is in the Peace Corps,

stationed near Fez, Morocco. After Dick tells me that he has four kids he announces, later, that he is married, and to the little wife, "Mim," and has two grandchildren. I must look up in Goodridge and see what Mim's full name is. Dick bowls, and well; is RADEF officer in Civil Defense, and the family attends St. John's church, which operates under a charter from George III. I suspect that George is mighty proud of Dick. Being a Baptist I, naturally, avoid any thoughts of old George, as he never issued a charter to our church. . . . Lou Flanders tells me that he is, by sheepskin, an architectural engineer, whatever that is. I can't find the course in the catalog. Anyway, he works for some fire department, south of where they publish this Journal. How about a word, Lou?

I have a good letter from **Fred Aldridge**, Director of Environmental Health, Seattle-King County Department of Public Health. How's that for a title? Thanks for them kind words, Fred. It does an old man good to get a bit of praise once in a while. Now, here we have a fellow who knew what he wanted way back when. He took the right Course, XI, a master's at Harvard, then married Jean Cairns Miller, Simmons, '34. Then in 1950 took the whole family and went to: Greece, the Near East, Iran, Indam, and Libya, on the payroll of the U. S. Public Health Service. It is not clear what he was doing so far from the feed bunk. Can it be that Fred was watching out for the health of our citizens in these far away spots? By the way, at the end of his letter Fred indicates a nickname, to wit: "Sois." This sounds like an infringement, as I recall our having a classmate named "Soisla," who came from Chester, Mass. Anyone remember Soisla? If so, drop me a note. Fred has three children and seven grandchildren. That gets you into the club, Fred, but you have to buy your own button. He has, after 14 years, retired from the U.S.P.H.S., and has joined the above, in Seattle. Fred, if you get to one of those regional M.I.T. club meetings, send word on any of the faithful who happen to appear. . . . I almost forgot to mention that John King's good wife, Mary, is a long time member of the Euclid (Ohio) School Board. I'll never forgive myself if I leave out mention of the girls. **Bob Winters** is in great demand as a speaker. His last is a talk in Toronto on Canada's natural resources and water power, including nuclear power. I used to get in a little public speaking, but only until they found out that I had little to say, and I never did learn. It turns out that my kind wind up as secretaries.

No clips so we can turn to something important. Fellows, I would like to hear from all vice-presidents, mostly: **Dick Fossett**, **Jack Andrews**, **Bill Barbour**, **Rog Condon**, **Clyde Dively**, **Russ Eddy**, **Mal Fleming**, **Marc Gilbert**, another **Bleeding Canadian**, **Charles Harper** (Chuck, do you ever see William Harper? You both live in San Antone.), **Outerbridge Horsey**, **George Isserlis**, **Ed Jones**, **George Koeller**, **Dave Lee**, and last but surely not least, the old tough guy wrestler, **Musty Mustafa**. Wives who read this, please get after these fellows, and force them to

write. . . . No funerals, weddings or whatall, this time so that's it.—**Warren J. Henderson**, Secretary, Fort Rock Farm, Exeter, N.H.

'34

This is a much delayed report from **Ken Lippitt**, your class secretary on the West Coast. Both Catherine and I were unhappy that we couldn't attend the 30th Reunion but enjoyed reading the reports of the excitement and activities. . . . We have an active M.I.T. Alumni Club in San Diego and I have attended many of their meetings. The last meeting was at the new campus for the University of California at San Diego. Dr. Bruckner, head of the Graduate School, discussed the planning for the University and the scheduling of the University's development. It is interesting to note that this division of the University of California will be made up of seven individual undergraduate colleges, each having an enrollment of about 2,300 students, with their faculty, dormitories, and eating facilities. Each college will have a balanced educational curriculum with some stressing the humanities, some stressing engineering, and so forth. A major part of the university will be the Graduate School which will be very diversified and will have a large enrollment because other state schools and local colleges are rather weak in their graduate courses. A medical school will be a part of the university and will take advantage of its proximity to Scripps Hospital. The first college will be completed this year, the second college in about three years, and they will continue to complete a new college each three years. The campus is located half a mile from the coast and slightly north of LaJolla. It has a beautiful setting.

I have been living in Southern California for about five years and am now employed by General Dynamics/Convair. For the past 15 years I have been active in design and fabrication of large steerable antennas. At the moment I have technical responsibility for three tracking antennas for use on the Apollo Tracking Ships. We have three boys—my oldest, John, is a civil engineer working for the city of Los Angeles; Tom is attending Southwestern Junior College, and Jim graduates from high school this year. My wife beats me at golf occasionally. Her handicap is 17 and mine 15. I like to think it is because she plays about twice a week and I play once.—**Kendrick H. Lippitt**, Secretary, 3782 Putter Drive, Chula Vista, Calif.; Co-secretaries: **Charles M. Parker**, 3 William Street, Norwalk, Conn.; **W. Olmstead Wright**, 1003 Howard Street, Wheaton, Ill.; **Norman B. Krim**, 15 Fox Lane, Newton Centre 59, Mass.

'35

Our 30th is only five weeks away as you read this—sign up now, if you haven't already, and call up the class-

mates you wish to see there most, to be sure they are coming, too. As of press time, 45 days before you get this, we have 40 signed up and it looks as though we may exceed the 75 we hoped we could get. Contact **Bob Forster** right now, by phone: office 617-254-8730, home 617-235-2239. Do not miss this 30th unless you are awfully sure you and all your friends will be around for the 35th, 40th, 45th and 50th. . . . **Leo Beckwith** has passed along a letter **Jack Colby** wrote him to update us on our former president: "Just received your nice letter. Unfortunately, I had another heart attack in July and was laid up until October 1. Under doctor's advice I have taken a leave of absence until next June and moved down here (on the Keys, Rt. 1 Box 108, Islamorada, Fla.) where I can get out in the sunshine and get some moderate exercise. Sold our house in Milwaukee as with two kids in college we don't need a big house. Our youngest is here with us and going to local high school. I hope to come back north via the east coast in June and I will make every effort to make the reunion—health permitting. Come and visit us—we have a spare bedroom." . . . Leo followed with this report of his visit to Jack: "While in Florida last week we drove down to the Keys to Islamorada and spent a delightful afternoon with Jack Colby. I thought the class would be glad to hear that Jack is looking fine. He's lost a little weight, is brown as a berry, and took us on a wild western type boat ride around the island and through the mangroves with the skill and enthusiasm of a kid. He seems to be making good progress in recuperating; in fact Jack is going to look younger than most of us at the Reunion. In addition to the boat ride Jack showed us the private pool of the "colony" they live in where they have some tame bone fish that will eat their lunch right off your hand. He and his boy Bob are assembling a new fiberglass boat that will take his 80 horse power motor and give him better facilities for fishing. I can see why he loves it there. Jack looks fit and should be ready to get back into the harness come next summer. We had a delightful cocktail hour with him and Priscilla, after which we zigzagged our way back to our motel in Hollywood. Jack and Priscilla are looking forward to the reunion with a lot of excitement. Jack says he'll personally be responsible for rounding up 20 other couples and I think before we're through we're going to have a turnout that will exceed Bob Forster's dreams. I hope all our class members will respond as enthusiastically to the prospects of the delightful reunion Bob is lining up at Chatham. 'Sign up and line up your friends.'" We look forward to seeing Jack and Priscilla in June.

When **Bob Anderson** (Robert C.) saw his name several times in the class notes last year he figured that the secretary was trying to fill up the column, but on the other hand there just might be someone masquerading under his name. When the reunion letter came out with his name on the committee and in the list of those signed, he was sure someone was using his name and he wrote to Bob Forster.

Bob quickly put **Robert C.** at ease with the news we also have a **Robert J. Anderson**. The **Bob Anderson** who has been in the notes is on the committee and is coming to the reunion. For those of you who missed it in the notes the first time, **Bob Granberg** some time ago changed his name back to the old family name of his grandparents. So **Bob J.** is none other than our swimming captain of 1935 and Class Secretary for the 11 years ending with our reunion at Stockbridge. **Bob C.** has lived in Omaha for the last 10 years after varying intervals at Sparrows Point, Durdalk, and Baltimore in Maryland. His address is 9366 Jones Street and we surely hope he plans to join the rest of us at Chatham Bars Inn. . . . Several of our class have been front-page news lately. **Bill Abramowitz** made it when \$20,000 of antique jewelry was taken from his home, and made it again (with picture) when it was recovered from a locker in North Station. . . . The M.B.T.A.'s new general manager, Major-General **Rush B. Lincoln, Jr.**, was on the front page for days. He received his M.S. in civil engineering with us. . . . **J. Goffe Benson** made it in the Ashtabula, Ohio, paper when he was recently appointed executive vice-president of the Linde Division of Union Carbide Corporation. Interestingly enough the appointment was announced by another '35er, **Bob Flood**, president of Linde. Goffe first went to Linde in 1937 after receiving his master's at M.I.T. and has been there since in successively more responsible positions. . . . **J. Howard Beck** didn't make the front page but there was a lengthy article about him and his company in the Sunday Herald complete with picture and interspersed with quotations of Howard's philosophy. His daughter attends Vassar and his son is at Roxbury Latin.

News from here and there: General **Frank S. Besson, Jr.**, who also received his M.S. in civil engineering with us, is one of the U.S. Army's youngest four-star generals. He is Chief of the Army Materiel Command. . . . **Allan Creighton**, who lives in the Williamsport, Pa., area, is representing M.I.T. at the inauguration of the 11th president of Bucknell University. . . . A change of address was received for **Ned Collins**. He is living at 11 Rockville Park, Roxbury, Mass., telephone: 445-3410, and hopes he can establish himself in the area permanently. . . . **Adam Altglass** has been promoted to colonel. He lives at 3111 Southdale Drive, Dayton, Ohio 45409. . . . **Paul E. Davis, Jr.** now lives in Raleigh, N.C., 27602 at 1600 Canterbury Road. . . . **Harold L. Gammon's** new address is 12 Fairview Ave., Clinton, N.J. . . . **Malcolm A. Porter** has moved from Seattle to 1425 Hamilton Blvd., Hagerstown, Md. . . . **John Thorpe** now lives at 33 Meadow Lane, Chappaqua, N.Y. . . . **Kenneth D. Young** has moved from E. Greenwood, R.I., to 32 Elmwood Avenue, Dedham. (Find out if he plays golf, Art!). . . . I am sorry to report the death on January 28 of Brig. General **Edward Barber** whose home was at 7230 S.W. 83rd Street, Miami. . . . One more bit of news for golfers (you can skip this, Prescott): by now the 5th Annual Class

Golf Tournament will be getting organized and if you haven't yet signed up, get your card in immediately. Every effort will be made to arrange for out-of-town tournament players to play matches at the reunion, two or even three rounds if possible, so bring your clubs and hope for good weather. **Paul Daley** will have to figure on commuting from Dana Hall or vice versa.—**Allan Q. Mowatt**, Secretary, 61 Beaumont Avenue, Newtonville 60, Mass.; Regional Secretaries: **Edward A. Edger**, Kerry Lane, Chappaqua, N.Y.; **Hal L. Bemis**, 510 Avonwood Road, Haverford, Pa.; **Gerald C. Rich**, 105 Pasa-tiempo Drive, Santa Cruz, Calif.

'36

In December **Lesley Stahl**, daughter of **Louis** and **Dorothy Stahl** of Swampscott, was married to **Jeffrey Gordon**, a student at Cornell Medical School. The bride was graduated from Wheaton and her husband from Amherst. . . . Some time back **Frank Lessard** was transferred to the Bethlehem Steel Company's home office as assistant manager of sales, reinforcing bars and construction specialties. . . . Colonel **Roman Ulans** has left Fort Monmouth for parts unknown to me. His address is U. S. Element Cento, American Embassy, A.P.O., New York, 09354. Other address changes are less cryptic and not so drastic. . . . **Stanley Brown** is at 11 Pearl Street, South Hadley, Mass.; **R. Marshall Christensen** at 22 East 84th Street, N.Y.C. 10028; **Tom Johnson** is now using a box number in Providence (Box 1637); **Bennett Sharp** would like his mail addressed to Federal Pacific Electric Company, 50 Paris Street, Newark, N.J. 07101; while **Larry Sharpe** wants his at P.O., Box 5, Milford, N.H. . . . My address remains unchanged if any of you have the urge to communicate.—**Alice H. Kimball**, Secretary, 20 Everett Avenue, Winchester, Mass. 01890.

'37

Matthew Rockwell spoke recently to the Winnetka, Ill., League of Women Voters on "Metropolitan Planning: Whose Responsibility." He also addressed a joint meeting of the Glen Ellyn Young Republicans and the Glen Ellyn Woman's Republican Club on the operation of the Northeastern Illinois Planning Commission. Matt was appointed executive director of the commission in February, 1964. He had returned to the metropolitan area after two years in Washington as director of urban programs for the American Institute of Architects, where he had the special assignment of stimulating activity in the field of urban design. Before 1961, he was a partner and co-founder of Stanton and Rockwell, Chicago based firm of architects and planners. During 15 years with the firm he did office design and site selection work for a number of major business firms. Rock-

well also served as planning consultant for a number of Northeastern Illinois communities, including Chicago Heights, Highland Park, Glenview, Deerfield, Wilmette, Northfield, and Villa Park. Two of his first planning positions were with the Chicago Plan commission and the Chicago regional Planning Association. During World War II he served with the Corps of Engineers as planning officer where one of his projects was the location and site design of O'Hare airport. . . . **Sydney B. Karofsky**, of Brookline, Mass., was recently elected to the presidency of Hillel House at Boston University. Syd has been closely identified with educational and philanthropic activities for more than two decades. He was one of the staunchest supporters of Brandeis University, almost from the day of its founding, and is a life member of its Greater Boston Club. He is also a past president of the M.I.T. Alumni Stein Club.

Heard from **Ernie Ferris** who is living near Chicago, Ill., and runs into **Bob Bauer** ever so often. . . . Congratulations to **Herbert K. Weiss** on receiving the Department of the Air Force Commendation for Meritorious Civilian Service. . . . **Charles A. Blessing** recently spoke at the Plymouth High School in Michigan on "The City: Beauty and the Beast," in which he discussed the strip city and implications of social changes involved in the population explosion. He is the director of the Detroit City Planning Commission, and co-author of "Surging Cities" published in 1948. Blessing has acted as a consultant on housing for the National Advisory Committee on Housing for the White House Conference on Aging and as regional planning engineer for the Greater Boston Development Committee. He also has worked on development committees in cities across the nation. With **Rockwell** and **Blessing** contributing most of the space for this month's notes, the top honors go to the City Planning Course. I hope the members of our class in the other courses will take note, and see if they can outdo this performance.—**Robert H. Thorson**, Secretary, 506 Riverside Avenue, Medford, Mass.; **S. Curtis Powell**, Assistant Secretary, Room 5-325, M.I.T., Cambridge, Mass.; **Jerome Salny**, Assistant Secretary, Egbert Hill, Morristown, N.J.

'38

Clean living can be more than its own reward—especially when it's supplemented by such a potent assist as that postcard for news included in **Haskell Gordon's** epistle to each of you! . . . **Hal Straus** was the first to check in, with "One never knows what catalyst is liable to set me off. A case of mistaken identity is about as far-fetched as one could imagine, and thereby lies a short tale. Friday the 13th coming on a Wednesday in January, one **Don Severance** called me on the phone about midnight to say 'Hello,' and to inform me that he could not have breakfast the following morning unless I was willing to meet him in downtown L.A. about

5 A.M. since he was taking an early plane to Seattle or some equally outlandish place. His partner-in-crime, **Fred Lehmann**, insisted that he saw you in the elevator at the Hilton! Investigation was negative, indicating that the Class of '51 has not yet learned to maintain awareness of surroundings and people. Don then suggested that I inform you of these events and thus the beginning of this letter." (Secretary's note: I could produce documented oaths to prove I was not in L.A. during January—but considering the number of distinguished personages one sees there, I consider it a forgivable mistake.) Hal continues, "Last November while sitting on this Board in San Francisco, another fugitive from the East, **Ira Lohman**, strolled in and not having anything better to do at the moment proceeded to take the E.E. exam and became registered as a Professional Engineer in California. Ira is one of the managers of the IBM facility at San Jose. **Al Minott** has joined Hughes in the Space Systems Division and is presently involved in the Surveyor Program which is going to make the first softlanding on the moon in the very near future. I am also involved in the same program. . . . **Jack Rosenberg** left Hughes about a year ago and is now associated with Wyle Labs. (Frank Wyle '41). . . . **Bill Shamban** is still the world traveler setting up fluorocarbon plastic plants and outlets in all sorts of exotic areas. . . . **Howard Britton** is in facility engineering at Jet Propulsion Labs, a division of Cal Tech, which is associated with NASA as program managers of the unmanned lunar and planetary programs. Howard has developed a beard in the Lincoln-esque tradition, but has otherwise maintained his youthful mein. . . . **Haskell** and **Ina Gordon** spent a week away from the wild New England winter here in the balmy southland. Haskell is one of the members of the National Board of the Federation of Temple Brotherhoods which held their meeting here. Even though we got together for just a short visit, we had a great time reviewing the slides of the 25th. . . . **Henrie** and I are now beginning to enjoy the fruits of our labors. Our son **Ed** is expected to be a graduating member of the Class of '65 which gives us an excuse to be back this year for Alumni Day. Next fall **Ed** expects to enter law school to broaden (?) his engineering background. Our daughter **Susan** entered San Diego State last fall and is now in the full swing of college. That leaves us childless for the nonce and allows all sorts of limitations on activities to be removed. Furthermore I have just been 'outstalled' as master of my Masonic Lodge after a strenuous nine years in the 'line.' It was a great experience but it is equally wonderful to have it all behind one. Governor **Brown** has just reappointed me to another four years' term on the Board of Registration for Civil and Professional Engineers. This is one endeavor that forces me to continue my studies in M.E.—at least enough to continue examining prospective professional engineers."

Bill Whitmore included this succinct summary in a letter which **Don Severance** selected: "My professional activities

continue about as usual with trips to Washington once a month for various government activities, mostly Navy. Last Friday, along with several others including Stark Draper, I was honored in San Diego for participation in the Polaris Program. The Polaris Project was given the John J. Montgomery Award by the National Society of Aerospace Professionals and the San Diego Aerospace Museum. It was an excellent chance for a reunion with many of the people who made Polaris possible. My present title is special assistant to the president of Lockheed Missiles and Space Company, which mainly reflects shifting internal organization rather than any change in actual duties." . . . From our postcard returns, I am delighted to pass along the following very current reports! **Jim Emery:** "Am now vice-president and superintendent of Patapsco and Back Rivers Railroad, a terminal switching line serving the Sparrows Point Plant of Bethlehem Steel and other industries in Sparrows Point, Md., area. We currently have our daughter Sally, 22, now living in London, England. Pam, 14, and Jim, 11, are still at home." . . . **Harry Hollander:** "I became president of A. Hollander and Sons, Ltd., on November 20, 1964. Our business is the dyeing of furs, which of course is quite important in Quebec. It is a lot of work, but I still manage to teach folk-dancing at McGill." . . . **Walt Kaufman:** "Have just completed six years with Paulsen-Webber Cordage Corporation in Sunbury, Pa., as vice-president, manufacturing. Our basic wire rope plant has just been expanded by addition of a million-dollar automated steel wire drawing mill."

Assuming you've heard the plight of the cobbler's children, it should be easy to see why we are just now reporting that Assistant Secretary **Gretchen Nelson**, in October, 1964, was named contract sales and design director for George K. Birge Company, Inc. New York. They are manufacturers of wall murals and scenics, and recently announced a new line of hand silk-screened wall-coverings on vinyl fabrics. Gretchen, of course, was formerly president of R. G. Nelson, Inc., Providence, where she has specialized in contract interiors for 15 years. Her projects, including the automated U.S. Post Office in Providence, have received national recognition. She is past president of the New England Chapter of A.I.D., and past national chairman of that organization's industrial relations committee. . . . **Welcome Bender**, director of research for The Martin Company, represented the Institute in the academic procession on the occasion of the dedication of Madison Hall at Eastern College in Baltimore. . . . **William Steiner** has been named to the new post of operations director of the Wakefield Lighting Division and the Art Metal Division of Wakefield Corporation. Bill has been working continuously in lighting and related fields. . . . **Frank Kemp** is director, senior vice-president, and media director of Compton Advertising, Inc. He is an active member of the Media Directors Council. . . . "The Revival of Traditional Liberalism" was the subject of **Yale Brozen's** address to the

Economic Club of Southwestern Michigan last fall. Yale received a doctor's degree in economics after his S.B. in Course X with us, and is now professor of business economics in the University of Chicago's Graduate School of Business. He reviewed recent studies that convince him many of the nation's leading economists are rapidly becoming disenchanted with the federal government's moving into partial or complete control of the nation's economy. Government interventions into many spheres of our economy are hindering rather than helping the people the government is most trying to help. In urban renewal in Chicago, 20,000 low-income housing units were demolished in order to construct 10,000 low-income housing units—under a federal program primarily designed to provide more low-income housing! Economic controls by such bureaus as the Interstate Commerce Commission are, by their efforts, raising prices to consumers instead of lowering them. With an impressive list of consulting contacts, Yale is now a member of the Committee on Economic Policy of the U.S. Chamber of Commerce, and a trustee of the Foundation for Voluntary Welfare. Among other firms he serves as consultant to the American Telephone and Telegraph Company and General Motors Corporation. He sports, incidentally, a magnificent full-beard, which can be a hindrance to a pipe-fitter, but is reputedly worth \$5,000 per year to a professor of economics.

Sadly we report the death last August of **John J. Ford**, in LaJolla, Calif. John was senior flight test engineer for General Dynamics—Convair. . . . And now, just to direct your parting musings into a somewhat provocative direction, here is a card from **Cranston Heintzelman**, professor of architecture and sculpture at Kansas State University. Cranston observed in *Technique Revisited* that he has traveled extensively abroad for the study of sculpture and the graphic arts, and his own sculpture has been exhibited in a dozen museums and galleries throughout the country. In this latest communique he observes, "This is my sabbatical year away from Kansas State University. We have been cruising with my family—six of us—on our own 31-foot sailing cutter out of Marblehead. For the last 15 months we have combed the Bahamas, sailing 8,000 miles. My pursuits have been architectural research and painting." —**Frederick J. Kolb, Jr.**, 211 Oakridge Drive, Rochester, N.Y.

'39

Donald W. Waterman, II, with the Connecticut National Bank, in Bridgeport, Conn., has recently been promoted from assistant trust officer to the position of trust officer. Don joined C.N.B. in 1962, leaving Singer Manufacturing Company with whom he had been since graduation, except for service in World War II in the Corps of Engineers. Don is past president of the M.I.T. Club of Fairfield County, and member of the Amer-

ican Radio Relay League. Don and Nell, with their three children, live at 99 Flat Rock Road, Easton, Conn. . . . **William Hewlitt Phillips, XVI**, as chief of the space mechanics division of NASA's Langley Research Center, in Hampton, Va., recently accepted a presidential citation on behalf of his unit at an awards ceremony. Hewlitt's division was honored for the concept and application of a cable support system for Langley's Rendezvous Docking Simulator for spacecraft research. The Phillips, including Viola and three children, live at 310 Manteco Avenue, Hampton, Va. Radio-controlled model airplanes and boats are one of Hewlitt's chief hobbies, both the building and testing. On summer vacations he soars his radio-controlled gliders at Kitty Hawk, N.C., on the same high sand dunes where the Wright Brothers did their flight pioneering. For other activities, he is ruling elder of the First Presbyterian Church of Hampton, president of the local chapter of the Research Society of America, secretary of the Radio Control Model Club, and treasurer of a Boy Scout troop committee.

John E. Wood, V-Grad, has been elected executive vice-president—chemicals and metallics, of Vulcan Materials Company, of Birmingham, Ala. He will be responsible for the general management of Vulcan's Frontier Chemical Company and Vulcan Detinning Divisions. Prior to joining the Vulcan company, John was president of Enjay Chemical Company, a division of Humble Oil and Refining Company.—**Oswald Stewart**, Secretary, 3395 Green Meadow Circle, Bethlehem, Pa. 18017.

'40

First returns from the reunion letter indicate that already there will be over 100 adults and 100 children attending the on-campus reunion. . . . **Bill Green** is president-elect of Texas Manufacturers Association. At the annual conference of T.M.A., he expounded on the location of new industries in Texas and the expansion of the present industry because of the state's healthy business climate. . . . **Ed Deim** has been elected vice-president in charge of the construction group of Westinghouse Corporation. Previously Ed was vice-president of manufacturing of the X-ray and industrial electronics division. . . . In the midst of these reports of progress it is with regret that I must report the death of Captain **Harry Benjamin Dodge**, U.S. Navy Retired. Harry was with us for one year as a graduate student in naval architecture. He was born on June 13, 1906, at Island Falls, Maine, and was graduated from Deering High School in Portland, Maine, in 1924. He was graduated from the U.S. Naval Academy in 1930. Harry entered the submarine service and in World War II was commanding officer of the submarines Seal and Brill in the Pacific. He received several decorations including the Legion of Merit, a Gold Star in lieu of a

second with a combat V, the Bronze Star with a combat V, the Pacific-Asiatic Medal with five stars, and the Philippine Liberation Medal with star. During the Korean Conflict he served as commanding officer of the Navy supply ship Pollux with the U.S. Seventh Fleet. He received the Navy Commendation Ribbon. He was promoted to captain in March, 1949, and retired from the Navy in 1960, after 34 years of service. He was married on January 14, 1933, to Hagar Ahlfont, and is survived by his wife, father, brother and a sister.

Don't forget our slogan, "Life Begins with '40," and also don't forget to contribute to our 25th Reunion Gift to Tech. . . . See you at the Reunion June 12-14! —**Alvin Gutttag**, Secretary, Cushman, Darby and Cushman, American Security Building, Washington 5, D.C.; **Samuel A. Goldblith**, Assistant Secretary, Department of Food Technology, M.I.T., Cambridge, Mass.

'41

Johan M. Andersen has been in the news along with the impressive growth record of Duplicon Company, Inc., of which he is president and founder. According to Johan, Duplicon's principal product is service. However, its principal manufactured items are special metal products known as stacked metal stampings, an inexpensive substitute for costly metal machine parts which are normally carved out of solid metal and require expensive machining and cutting operations. Duplicon was started in a Hopkinton barn 18 years ago and is now helping some 700 industries. The technique for stacked metal stampings is to use a punch press to stamp out a plurality of similar pieces with each being in the order of only a $\frac{1}{16}$ inch in thickness. These parts are then riveted or cemented together to form a solid part identical in size and shape to a previously expensively machined version. Johan points out that the stacked metal stampings have about the same strength and durability as the machined version and can be produced far more quickly and cheaply. The resulting product somewhat resembles the laminated layers of wood used in some construction. Duplicon's biggest problem, according to Johan, is that many machine parts designers know little about stacked metal stampings and use the solid metal machine parts even though a Duplicon part could do the job more cheaply and at least as well if not better. Duplicon's sales have increased every year since its founding; 95 per cent of its customers are within 300 miles of the Westboro plant. The firm was started in 1946 when Johan was working in a U.S. Army mechanical parts development laboratory at M.I.T. After deciding to go into business for himself, he rented an old dairy barn in Hopkinton, set up a small battery of machinery and began producing small electrical parts. He was joined the following

year by his brother who is now vice-president and treasurer. The brothers made games, lawn furniture, fire alarms and glue injectors before branching into metal stampings in 1948. They opened a plastics division about seven years ago and now produce a sizeable line of plastic products. By 1949 they found business too brisk for the barn and moved to Holliston, then a few years later to Route 9 in Westboro.

We have been informed that production has started on a 20 program TV series designed to keep laymen as well as scientists and engineers up to date on developments in the scientific and engineering fields under the heading "Science and Engineering Television Journal" distribution of which was commenced by the National Educational Television network in March and is co-ordinated by the American Association for the Advancement of Science of which **E. G. Sherburne, Jr.** is project director. . . . **Malcolm D. Bray** has been named the new director of the product development division of the Eli Lilly and Company which is in the process of expanding its operations and research. Malcolm received his Ph.D. at M.I.T.—**Walter J. Kreske**, Secretary, 53 State Street, Boston, Mass.; **Henry Avery**, Assistant Secretary, 169 Mohawk Drive, Pittsburgh, Pa.; **Everett R. Ackerson**, Assistant Secretary, 16 Vernon Street, South Braintree, Mass.

'42

The first bit of news this month concerns **Al Goldis**, who has been elected president of Trimount Clothing Company. As most of the class knows, Al has been executive vice-president of the Clipper Craft clothing firm for the last 10 years and has been with the firm since 1945. Al has always been interested and active in our class activities. He is a member of the advisory committee of the Amalgamated Clothing Workers' Insurance and Retirement fund, president of the New England Men's and Boys' Clothing Manufacturers Association, a member of the board and executive committee of the Clothing Manufacturers of America, and a director of the B.C. Morton Fund, a Boston-based mutual fund. . . . **Ed Cavey** has been appointed director of hardware products for Yale and Towne's international operations. He has joined Yale and Towne's headquarters in New York City after serving as president of Dade Technical Services, Inc., Homestead, Fla., manufacturers of wire display racks and other fabricated wire products. He has held prior management positions as vice-president of manufacturing for Structo Manufacturing Company, director of planning for Whirlpool Corporation's Laundry Group, and manager of the manufacturing analysis department of Ford Motor Company's Lincoln-Mercury Division. . . . **Bill Tallman** was elected director of the Public Service Company of New Hampshire. He has been with the company since 1946 and was elected a

vice-president in May, 1964.

Charlie Smith, who is well known to most of the class, gave a talk on "The International Labor Organization" in Ashtabula a few months ago. I was so impressed with the newspaper article on Charlie that I shall reproduce a good bit of it here. A metallurgist, he was graduated with a B.S. degree from M.I.T. and became president of the Steel Improvement and Forge Company the same year, upon the death of his father. He is a director of the Drop Forging Association, Cleveland; Custom Tool and Manufacturing Company, Minneapolis; Industrias Kaiser Argentina, Buenos Aires, Argentina; Sifco do Brasil, Sao Paulo, Brazil; Metachemical Machines, Ltd., London; Metachemical Processes, Ltd., London; and Bharat Forge Company Ltd., Poona, India. In 1953, 1962 and 1964, he was adviser to employer delegates from the United States to the I.L.O. Conference, Geneva, Switzerland, and an employer delegate to the I.L.O. Conference in Geneva in June, 1965. At the I.L.O. conference of American States members in Buenos Aires in April 1961, he was an employer delegate. His civic activities include serving as trustee for: Greater Cleveland Y.M.C.A.; St. Alexis Hospital, Cleveland; Salvation Army; and Defiance College, Defiance. He is a member of the Joint NAM-USCC Committee on International Labor Organization and International Economics Affairs Committee. At the age of 33, he was a member of President Eisenhower's committee on Manpower Resources for National Security in 1953-1954. He was selected Cleveland's Outstanding Young Man and one of Ohio's five outstanding young men in 1954, as well as one of America's 10 outstanding young men in 1955.—**John W. Sheetz**, Secretary, Harvard Business School, Soldiers Field, Boston, Mass.

'44

Before your secretary's file gets any larger, I have decided to pass along some of the material that has been coming in. As I mentioned in March, with all the backlog of information on the reunion, some of this news may be dated. My notes last month were preempted by a trip to California where I was elected chairman of a committee on Barrier Protection of Wooden Pilings. It appears that I will soon be well up on the life of the marine borer. . . . A note received from the Carlisle, Pa., Evening Sentinel advises that **Charles Sollenberger**, X, has been appointed assistant director in charge of applied research labs at Allis Chalmers in Milwaukee. . . . **Henry Paynter**, I, who took his doctorate at the Institute and has stayed on with the faculty, has written an article which appeared in Communications. The article dealt with an improved flight path visual simulator which he had designed with two other professors at the Institute. While on the subject of articles, **Marlo Banus**, V, who also went on to

take his doctorate at the Institute, wrote an article in the Review of Scientific Instruments on "Efficiency in a Tetrahedral-Anvil Press."

While out on the West Coast last month I had an opportunity to stop out and see **Doug Russell**, XV and his charming family Eli, Duncan, Gifford and Tina. They live in the town of Tiburon, and Doug commutes to the city by ferry. Doug designed and built the house when they moved there from Vancouver some three years ago. Doug is with Bechtel and does some traveling in connection with pipeline and exploration jobs that Bechtel handles. There are a number of other promotions to report: **Reginald Robba**, XIII, has been named a Vice-president of Booz, Allen and Hamilton, Inc. He has been with Booz Allen since 1955 and is now being moved to the Washington office, from New York. . . . **Wally Dunlap**, X, has been appointed technical production manager for Monsanto Company's Agricultural Division in St. Louis. . . . The Benton Harbor News-Palladium advises of the appointment of **Dick Whiffen**, VI, as general manager of the Friez Instrument Division of Bendix Corporation. Until recently Dick had been general manager of the Bendix Aerospace Division in South Bend, Ind. . . . U.S. Envelope Company's new plant in Williamsburg, Pa., will be managed by **Richard Grant**, XV. Dick had been with the parent firm prior to moving to Williamsburg where the new plant will turn out all the envelopes sold by the U.S. Post Office. . . . A note from the Hartford Times tells of the merger of two local graphic arts firms into a new firm to be known as Lockwood-Cheney Corporation. Heading up the new firm is **R. Hewitt Townsend**, XV, who had previously been president of the Lockwood Corporation. . . . **Fred Stearns**, XV, has been in Attleboro, Mass., for many years with Metals and Controls Division of Texas Instruments. He has just been promoted to manager of the Central Region in Sales of Metals and Controls, and will now be living in Detroit. The Herald also announces that Fred is the author of more than 30 articles on a variety of technical subjects.

A note in the Wellesley Townsman tells of **Bob Plachta**, XV, having been elected treasurer of Phillip Hankins and Company, a computer consulting and computer programming service company in Arlington, Mass. . . . I received a note from Union Carbide last week that **Tom Carmody**, X, has been elected a vice-president of that firm. He will remain in marketing in the chemicals area. . . . One final note, **Scott Carpenter** of reunion fame both 15th and 20th has been made the class representative for the Class of '44 at Alumni Council meetings. . . . See you next month.—**Paul Heilman**, Secretary, 30 Ellery Lane, Westport, Conn.

'45

You still have time to make that reservation; choice rooms with a Vineyard

Sound view are still available at the Wychmere Harbor Club. At this moment we have only one additional name to add to that ever growing list of 20th Reunion attendees—**Julian and Lois Bushy** of Corpus Christi, Texas. Your reunion committee's bulletin number 2 dated February 1 and your class notes have listed all those planning to attend through March 5. Let's make it at least 100 plus! . . . I had a very nice letter from **Chick Street** the other day and, as I had expected, Chick reports that daughter Ann was Narragansett Bay Blue Jay Champion last summer in spite of her crew! Yes, the ole man was the crew. Chick reports that he and the skipper are already trying to mastermind some changes for next summer. Chick reports that he has been trying to do a little naval architecture. As Chick aptly states "while things generally come back some of the procedures and details have a very slow recall!" Unfortunately, Chick and Helen Marie will be unable to attend the Reunion. As commodore of the East Greenwich Yacht Club, Chick feels that he must race his own boat (not Ann's Blue Jay) in the Off Soundings Race that weekend. The Streets will be missed by all.

The Association Directory lists the following '45ers: Alumni Council: **Bob Maglathlin**; **Dave Flood**, **Bill Humphries** and **Dave Trageser**. Bob is chairman of the class reunion committee while Dave Flood chairs the personnel committee. **Dunc Luce** continues on Course XVIII—mathematics visiting committee. Club Officers: **Bill Mackenzie**, Vice President, Lehigh Valley; **Clint Springer**, President, Fairfield County; **Jake Freiburger**, Secretary, Dallas; **Ed Reed**, Secretary, Houston; **Nai-ping Ni**, Vice-President and Secretary, Taipei, Taiwan; and **Dick Martin**, Treasurer, Washington, D. C. Educational Council: **Vince Butler**, **Dick Martin**, **Ed Stoltz**, **Dave Flood**, **Al Oxenham**, **Warren Miller**, **Marshall Byer**, **Al Kriek**, **Curt Beck**, **Bob Gardner**, **Kirk Drumheller** and **Bob Hildebrand**. Did I overlook anyone? . . . The following information has been culled from reunion questionnaires taken at random. These questionnaires are your secretary's greatest source of information; please let me have some more! **Curt Beck** of Pampa, Texas, continues with Cabot Corporation as administrative assistant, research and development. Curt's wife, Wilhelmina, has an M.D. degree, Utrecht University, '48. Children: Curt E., six and one-half, Anna Catherine, five, and Paul three. . . . **Bert Bossler** is back in Amherst, N. Y., working on advanced flying and orbiting vehicles in the research department of Bell Aerosystems Company of Buffalo. Blanche, an Eastman School of Music graduate and Bert have three daughters: Barbara 14, Beverly, ten and Bethanne, seven. . . . **Marshall and Dorothy Byer** have—to the best of my knowledge—the only identical twins in the class: Deborah and Judith born in August, 1950. In August, 1951, along came Linda at which point Marshall went back into the Navy for the Korean Emergency. Marshall is with IBM in Owego, N. Y., as manager, analytical

design engineering; his prime responsibility lies in the heat transfer, vibration and electromagnetic compatibility for space borne computers. . . . **Kirk Drumheller**, after some six years of graduate school, teaching and trailer building, joined General Electric's Hanford Laboratories in 1951. As you all know, this atomic energy facility in Richmond, Wash., is now known as Battelle Northwest; Kirk is manager, advance fuels development (nuclear fuels). Betty Drumheller is a Whitman College graduate, '49. The Drumhellers' children are Karen 14; Susan 13; Ellen 11 and Michael 4.

Some months ago we reported **Guy and Betty Gilleland's** move from Scarsdale to Winter Beach, Fla. At the time I thought Guy was still with St. Regis Paper; we now can report that he is with Minute Maid as assistant to the financial vice-president giving particular attention to long range planning, internal consultation and cost reductions. Guy was born in 1954 while Stuart and Lynn followed in 1956 and 1960. . . . **Jim and Mary Jo Hoaglund** will not be on the Cape in June since John, their oldest, graduates from high school that weekend! Those of you who attended our 15th will recall that the Hoaglunds also had two daughters, Judy and Nora now 17 and 15. Jim is now general manager, air conditioning and refrigeration division of I.T. and T.'s Bell and Gossett Division in Morton Grove, Ill., just outside of Chicago. . . . Most of us do not have children graduating from high school this year—hence we look forward to seeing you at Harwichport next month!—**C. H. Springer**, Secretary, c/o Firemen's Mutual Insurance Company, 420 Lexington Avenue, New York, N. Y. 10017.

'46

Shortly after mailing off last month's column, in which I asked **Bill McEwan** to write us a letter, I received one from him in which he brings us up to date: "When we last met, at the 10th Reunion, I was happily fighting the capitalistic battle as a member of a small firm. We finally succumbed in 1958 and sold out to Litton Industries. Rather than relocate to California I returned to I.T.T. in Nutley, N.J., where I rejoined the electron tube laboratory from whence I had earlier come. In 1961 the scattered I.T.T. tube operations were gathered into a separate division with a modern microwave tube production facility in Roanoke, Va., and four scattered operations in New Jersey. Last year the four New Jersey groups were combined in a new plant in Easton, Pa." Bill is director, Electron Tube Laboratory, I.T.T., Easton, Pa., and points out that he remains "as one of the stubborn holdouts staunchly fighting off the onslaught of solid state devices. Old soldiers never die and some of us are too pooped to learn new tricks." Bill's family has grown, now composed of three boys and one girl, ages seven to 14. . . . **Roger Sonnabend** writes in response to my offer a few months ago to serve as a sounding

board for reunion ideas. He would like to register a strong vote for holding the reunion in Boston. "I believe a reunion serves two purposes. First, it enables classmates to come together to see one another after a period of years. Second, it brings us back to M.I.T. From the standpoint of convenience as well as closeness to M.I.T., I recommend that our reunion be held at M.I.T. or as close to M.I.T. as is possible. If we can't actually stay at M.I.T. itself, perhaps we can stay near enough to be able to meet, dine, or whatever—at least in part on campus." Rog reports that his Hotel Corporation of America is growing and prospering, thanks to contributions made by "a number of M.I.T. men including particularly **Jim Craig**, who in addition to being vice-president in charge of our Charter House hotel division, is also doing important work on long-range planning and on the construction, design and engineering facilities for hotels and motor hotels." Roger continues to be involved in many extracurricular activities. He is particularly busy in the field of education, serving as a trustee of Radcliffe, vice-president of the Harvard Business School Alumni Association, past chairman of National Training Laboratories, Boston University Human Relations Center, and involved in such governmental activities as Leadership Advisory Committee to the Office of Economic Opportunity, War on Poverty, and the National Export Expansion Council. Thank you, Bill and Roger, for your very welcome letters. I'd appreciate hearing from others, about your reunion thoughts, or just to bring us all up to date on your job and your families.

Burton Rockwell, a member of the architectural firm of Rockwood and Banwell of San Francisco, has recently been elected president of the Northern California Chapter, American Institute of Architects. Burton has been active in civic affairs as a member of the San Francisco Art Commission, as chairman of the Art Commission's civic design committee, and was the chapter's spokesman in recent freeway hearings. . . . We have a few new addresses to report. **Han A. Lieske**, 1711 Ocean Park Boulevard, Santa Monica, Calif.; **Daniel M. Kelley**, 525 Vine Avenue, Park Ridge, Ill.; **George R. Granger**, 16258 Marilyn Drive, Granada Hills, Calif.; **Malcolm Gordon**, 38 Chauncy Street, Boston; **Morton Goldfarb**, 171 Cedar Shore Drive, Massapequa, N.Y.; and **Douglas W. Erickson**, Memorial Cancer Foundation, 2315 Bath Street, Santa Barbara, Calif. With your help we will be back next month.—**John A. Maynard**, 25 Pheasant Lane, North Oaks, St. Paul, Minn. 55110.

'48

Although this month's mailbag will not go down in record as one of the fullest, all the news is good news, in spite of the old adage to the contrary. . . . **George L. Dearborn** became president of the Ludington State Bank, Ludington, Mich., on January 1. He was vice-president and

cashier of National Lumberman's Bank until he resigned to accept the new post. Mr. Dearborn is a director of several corporations and has been active in many civic and business affairs of the Muskegon community. He has served as a director of the Muskegon County Board of Education, the Urban League of Greater Muskegon, the Muskegon County Youth Commission, the West Shore Symphony, the Kiwanis Club, the Children's Day Care Center, and the Muskegon County Board of Realtors. He is a candidate for a master's degree in business administration from Western Michigan University and has lectured on real estate finance, appraisal, and business for the University of Michigan. . . . **Donald J. Blickwede**, Director of Bethlehem Steel Company's Homer Research Laboratories and patent division since January, 1964, has been appointed vice-president in charge of research. . . . **Albert J. Kelley**, Deputy Director at NASA Electronics Research Center in Cambridge, made news in February when he administered the oath of office to John A. Vitale, '50, Chief Engineer for the construction of the Lincoln Laboratory complex at Hanscom Field. . . . **A. V. Fiegenbaum** will be a keynote speaker at the Institute of Environmental Sciences' 11th annual technical meeting in Chicago on April 21-23, 1965. He will speak on the "Significance of Environmental Sciences to Total Product Quality." An abstract of his address follows: "The objective of truly effective product quality has become one of the major goals for both our domestic economy and our military program. The creation and achievement of such quality depends upon a process which begins with product conception and design and ends only when the product fully satisfies the environment in which it will be used. The rapidly developing methodology of environmental sciences is bringing a new dimension to this activity and is helping to make the control of product quality a truly total activity."

Peter H. Spitz and **Robert S. Davis** (Sc.D., '65), announced in February the formation of Chem Systems Inc., which was established to provide a new concept in technical consulting for management in the field of petrochemicals. The firm will offer worldwide services in the areas of process evaluation, technical feasibility studies, process development, scale-up design, computer applications, and process control. Mr. Spitz received B.S. and M.S. degrees in chemical engineering from Tech and spent seven years at Esso Research and Engineering in refinery planning and construction. In his most recent position as assistant to the president at Scientific Design, he was responsible for the areas of commercial petrochemical development and new projects. . . . You may have noticed in the Individuals Noteworthy column of the January Review mention of two of our classmates: **Robert I. Hulsizer, Jr.**, who has been appointed professor of physics and director of the Science Teaching Center at the Institute, and **Robert L. Stern**, who has been appointed Chief, Office of Industrial Services, National Bureau of Standards, U. S. Department of Commerce.—

Robert R. Mott, Secretary, Kent School, Kent, Conn. 06757; **Richard V. Baum**, Assistant Secretary, 1718 E. Rancho Drive, Phoenix, Ariz.; **John T. Reid**, Assistant Secretary, 80 Renshaw Avenue, East Orange, N. J.

'49

The mailman shunned me completely this month but I still have a good backlog of questionnaires to abstract for you. So here goes. . . . **Bert Chope** founded his own company (Industrial Nucleonics Corporation) in Columbus, Ohio, and has 1,650 employees. None have been fired. At least, that space was left blank on the questionnaire. Bert likes boating and photography, has gained 30 pounds, never started smoking, isn't sure how many push-ups he can muster, devotes five hours a week to community affairs. On the question: Do you contemplate starting your own business within the next five years? Bert answers stoutly: "Never again!" He and his wife (the former Joanne Begg) have a son Douglas who is almost two. . . . **Russ Cox** is president of his own firm and has hired 50 persons. Despite having his own outfit already, Russ intends to start another within five years. Business takes him an average of 75,000 miles per year in the course of which he has visited 12 countries. In the health department, he has stopped smoking, lost 10 pounds since graduation, doesn't have ulcers, and can do 15 push-ups. Community affairs keep him busy an average of four hours a week and he is keeping up in his field (real estate) by evening courses. He and Sally have four girls: Carolyn, 10, Cynthia, 7, Elizabeth, 5, and Leslie, 3. . . . **Chuck Holzwarth** is vice-president and director of marketing for the National Lock Company in Rockford, Ill. His hirings and firings are tied at approximately 30 each which gives food for puzzlement when you come right down to it. He has gained seven pounds, doesn't smoke, can do 20 push-ups, and like most of us doesn't have ulcers. Business travel takes Chuck 50,000 to 100,000 miles a year. He has visited one foreign country. Community work takes three hours a week and Chuck keeps up in his field by attending three national seminars a year and by reading. He and his wife Shirley have four children: Camis, 13, Charles Jr., 11, Gregory, 9, and Roberta, 7. . . . I have received belated word of the death, on July 16, 1964, of **Andre P. Viret** whose address was 387 Prospect Street, Ridgewood, N.J. Andre is listed in the Alumni Register as a project engineer for the Bendix Aviation Corporation. I regret the absence of other details.—**Fletcher Eaton**, 42 Perry Drive, Needham, Mass. 09192.

'50

Plans for our Class Reunion, to be held at the Sea Crest Hotel, Cape Cod, on the weekend of June 11, 1965, pre-

ceding Alumni Day at M.I.T., are rapidly shaping up. Co-chairmen of the reunion committee are **Stan Chaikind** and **Warren Marcus**. Among those on the committee are Mitch Hannoosh, Jordan Loftus, Jack McKenna, Bob Cesari, Harry Foden, Jim Staikos, Searle Reese, Jim Gay, Doug Martin, Ray Kretschmer, Paul Eagan, Bob Plouffe, Ed Cohen and yours truly. . . . In store for us for our 15th anniversary is a stimulating program that will lead to a gala weekend! Clambakes, cocktail parties, sightseeing, all sports (including deep-sea fishing), dancing and entertainment are among the events scheduled. There'll be a more serious side to the reunion, too, including discussions of changes taking place at M.I.T. and subjects of current interest. For alumni planning to bring their children, special arrangements are being made to provide baby-sitters and a full program of supervised activities for the children. Costs for the weekend (from Friday dinner to Sunday lunch) are presently estimated at \$50 each for adults, and \$20 each for children staying in the same room with parents. Send in your reservations at once if you have not already done so. Boston Area Contact: Warren Marcus, 62 Waban Avenue, Waban, Mass., (home) 617-969-8563 (office) 617-665-4800; New York Area Contact: Stan Chaikind, 98 Hoyt Street, Stamford, Conn., (home) 203-325-2153. . . . Hope to see you all there. Meanwhile, why don't you organize a small group of your classmates to join you at the Class of '50's 15th?—**G. N. Stillian**, Secretary, St. Clair and Welch, Inc., 10 E. 40th Street, New York, N. Y.

'51

In response to my January notes, I received a very nice letter from **Gene Lubarsky** informing me that he did not marry "a" girl of the class of 1951—he married "the" girl. Gene, I believed you, but one of the Review's editors did not. Gene married Trudy Zaroni, his senior week date. At the senior dance she was given a loving cup ("it's around the house somewhere"), as the queen of the class. **Martin Miller** will (allegedly) attest to this because he had a tough time getting it engraved. . . . In February, **Mert Flemings** was deprived of a couple of papers due to the re- and mis-arrangement of a couple of commas, and Murray Sirkis really isn't an "association" professor (are you, Murray?). Bear with me—I'm trying. . . . Some of my information isn't exactly brand new so I'll report it and hope that it hasn't changed too much. **Robert Harley** is with the Signal Generator Development group at the new Bolton (Mass.) plant of General Radio Company. Bob is living in Harvard, Mass.; his third and most recent child, Bruce, is a year old. . . . **Lawrence Hitchens** is the development representative for U.S. Steel's Commercial Product Development Division in Pittsburgh. Prior to this, Lawrence was project manager at Westinghouse's Atomic Fuel Division. . . .

William Krampert is a management consultant with A. T. Kearney and Co. in Chicago; the company specializes in institutional planning. His spare time activities include the Board of Education of the Mt. Prospect (Illinois) schools and the Illinois State Chamber of Commerce Higher Education Committee. Bill recently addressed the New Trier Kiwanians on "Long-Range Planning Studies for Hospitals." . . . **George (Bill) McClary** is with Thiokol Chemical Corporation in Bingham City, Utah. . . . **Bill Pinkham** is manager of the New Jersey sales office for the Trane Company.

With the formation of Abt Associates in Cambridge, Mass. (a consulting firm specializing in combining social sciences, computer model simulation, operations analysis and systems engineering), **Clark Abt** has joined those who prefer to work for themselves. Clark had been manager of Raytheon's advanced systems department and is well known for his work on computer model simulation. . . . **Manfred Becker** has been promoted to engineering manager, Aerospace Applications, at the Fafnir Bearing Company, New Britain, Conn. Manny has been with Fafnir since he got out of the Air Force in 1953. The Beckers live in nearby Newington, Conn., with their son and two daughters. . . . **Christian Bolta** has been promoted within the Atlantic Research Corporation. He is now the assistant head of the Limited Warfare Group, a new section at Atlantic. . . . **Lawrence Bray** has his own architectural firm in Sheboygan, Wis., which specializes in the design and construction of schools and churches. His firm was recently hired to draft plans for a high school addition, a new bank building, and a building program for the Stephenson Town School District. . . . **Rane Curl** has been a research engineer at Technische Hogeschool, Eindhoven, Holland, and was appointed associate professor of chemical engineering at the University of Michigan for the academic year 1964-65. . . . **Carl Graf** has been named president of the Overseas Division of W. R. Grace and Company. Carl first joined Grace in their Dewey and Almy division after graduating from the Harvard Business School. He and Genevieve (Zacharias) live in Belmont, Mass., with their two children. . . . **John "Doug" McGrew** is now manager of Kanawha Valley Computing Center for the Chemicals Division of Union Carbide. The McGrews live in Charleston, W. Va., and boast of four children: Sally, 8, Virginia, 7, Robert, 3, and Duncan, 10 months. . . . **George W. (Bill) Meckert, Jr.** is president of George W. Meckert, Inc., Concrete Products. Bill entered politics as Commissioner of Lower Moreland Township (Pa.). His boast: a full house: 3 boys and two of the other kind. . . . **William Miller** is job-supervisor, speed variator development engineering, with General Electric in Erie, Pa. Bill was the regional chairman for the Alumni Fund Drive in Erie in 1963 and 1964 and achieved the enviable record of 100 percent participation in 1964. Bill and Marlene have two daughters and live in Erie.

Clinton Seeley has "permanently (?) settled in Andover (Mass.), building a

castle in the woods, raising four (so far) children (comments are Clint's) and practicing radiology in two hospitals and a private office." Clint further comments that he is "becoming a fairly skilled stonemason and carpenter, in the event that my 'liberal' countrymen elect to socialize me in my primary profession." While a number of us were getting Ph.D.'s in our engineering and science fields, Clint picked up a different type of doctor's degree. . . . Another who went that way: **Morton Bosniak, M.D.**, associate Professor at the Boston University School of Medicine, is also in the field of radiology. . . . **Charles J. Stokes** is in Peru on his third Fulbright. His normal duties are teaching; he is the Dana Professor at the University of Bridgeport (Conn.) and he is also a consultant to General Tire. He is active in community affairs and is Regional Planning Chairman. The Stokeses have a boy in high school and live in an "old (1760) home on a back road in Fairfield County, Conn."

Richard Strauss is vice-president of operations and development at National Polychemicals, Inc., in Wilmington, Mass. Dick and Virginia live a few doors over from me in Lexington with their three children: Judy, Ellen and Jon, 7, 5, and 3 respectively. . . . **Denny Spangler** is manager of the applied mechanics department at the Vidya Division of Itek in Palo Alto. He and Louise have four girls. . . . **Louis Winberg** is visiting professor of electrical engineering at the University of Michigan. In 1964 Lou received the Distinguished Alumnus award from Brooklyn College. . . . To sound non-partisan, I will quote from **Victor Yancey's** note, "Thanks to MacNamara I have left Boeing and the Dyna-Soar program, and have returned to Wright-Patterson Air Force Base (research and technology division), where I started my career in 1951. I adopted two youngsters in Seattle (ages 3 and 5), and now have four children." . . . **Fred Aldrich** has been named reunion chairman for the Class of '51's 15th which will be held in June of 1966 (only one year away!). Fred has informed me that because everyone enjoyed Chatham Bars Inn on Cape Cod so much in 1961, it has been reserved again for us for 1966. Our class has built up a substantial reputation for outstanding reunions which should start you thinking about two things: going to the 15th, and volunteering to help Fred. Anyone who is interested in helping is encouraged to contact Fred Aldrich directly (or through the under signed). Fred's address is 39 York Street, Lexington, Mass. 02173.—**Howard L. Levingston**, Secretary-Treasurer, 358 Emerson Road, Lexington, Mass. 02173; **Forest Monkman**, Assistant Secretary-Treasurer, 108 Park Avenue, Larchmont, N. Y.

'52

Your secretary is back in freezing New England, after spending two sunny months in Africa seeing old friends, game parks, white sandy beaches, and the like, and is

finding that winter is one of those things best avoided if at all possible. At any rate, the mailbox is full of items on return, and without further ado, will try to catch up. . . . **J. Burgess Jamieson, Jr.** has been elected to membership on the committee on Student-Alumni Relations of the Alumni Council: Some of **Gustav J. Rath's** work with IBM using computers to assist in construction has moved along to a practical system, offering advantages in comparing student responses with anticipation, and letting the machine decide what action to take next. . . . **David Kessel** presented a paper at the fall meeting of the American Chemical Society in Chicago reporting on the use of bacteria to investigate enzymes which are related to the rapid growth of leukemia cells. Dr. Kessel is a research associate in biochemistry at the Children's Research Foundation in addition to being a member of the Pathology Department of Harvard Medical School. . . . Copper Range Company has announced that Senior Staff Geologist **John Fritts** has been assigned the responsibility of exploration of the Protage Lake lava series as part of their expanded geology program.

Charles H. Ehlers of Lexington has been appointed manager of the Cambridge, Mass., plant of Dewey and Almy Chemical Division, of W. R. Grace and Company. He has been with Dewey and Almy since 1954 and has held managerial positions in sales, research and manufacturing of sealing compounds for cans, glass container closures, and industrial parts. . . . **Sheldon G. Thorpe** has been promoted to director of quality control at Baxter Laboratories. . . . **William D. McKinley** of Boston has been named manager of Raytheon Company's program of developing transmitter amplifiers for Nike-X-Radars, which will make the initial detection of oncoming intercontinental ballistic missiles, and are being developed under a contract of Bell Laboratories. . . . Major **Richard C. Wingerson**, formerly in Juneau, Alaska, is now director of the Plasma Physics Research Laboratory at Wright Patterson A.F.B. Ohio, which is part of the laboratory system of the Office of Aerospace Research. . . . Lieutenant Colonel **William Lewis**, U.S. A.F. received an Air Force Commendation Medal for meritorious achievement while at Strategic Air Command Headquarters where he devised a program for verifying and evaluating weather forecasts at SAC bases through use of computers. . . . **Morris Levin** of Brookline, (Master's Degree, '52), was killed recently in a collision on the Massachusetts Turnpike. Dr. Levin had been working as an electronic scientist at Lincoln Laboratory. . . . Haven't heard yet on the cocktail party this June ('tis March when this is being written) but presume it will be the Friday before Alumni Day, so watch for it.—**Dana M. Ferguson**, Secretary, 242 Great Road, Acton, Mass.

Marty Wohl, I, and a major topic of conversation was you. We have devised a simple questionnaire which should be helpful in transmitting current information. When you receive this sheet please fill it out and return it for inclusion in your notes. . . . The First Boston Corporation, an investment banking firm with headquarters in New York, recently announced the appointment of **E. Fletcher Hosmer**, XV, as an assistant vice president. He is currently a member of the research division of the underwriting department. . . . **Joseph Casanova, Jr.**, V, has received a National Science Foundation grant for research in physical-organic chemistry. After studying with Dr. E. J. Corey at Harvard for two years, Dr. Casanova went to the California State College at Los Angeles, where he is now an associate professor. . . . A former class president, **Marion C. Manderson**, XV, has returned to Cambridge and Arthur D. Little, Inc. For the last several years Mandy was with the Armour Agricultural Chemical Company, where he was commercial development manager responsible for long-range planning and market research for agricultural and industrial chemicals. Back at Arthur D. Little, Mandy will be with the management services division, responsible for conducting market, organizational, and technical economic studies for the heavy chemicals industry.

Frank Angelis, XV, has been named president and treasurer of Ralph's Television and Appliance Company, in Hyannis. Frank had previously been employed with A.M.F. in Buffalo, N. Y., and the Sage Laboratories in Natick. . . . **Redmond R. O'Brien**, XVIII, recently co-authored a paper in the IBM Journal on "A Statistical Approach to the Design of Diffused Junction Transistors." Redmond, received a B.S., M.S., and Ph.D. in mathematics from M.I.T. He joined Sylvania Electric in 1958 as a member of the operations research and mathematical analysis department, where he worked on communication and detection problems in noisy environments (which sounds very useful!). In 1960, he joined IBM Components Division in Poughkeepsie, working on the theoretical analysis of computer problems and semi-conductor devices. . . . **James K. Nelson**, II, published an article on "Air Conditioner Fan Design." He is an engineer in the advanced development engineering group of the Norge Division of Borg-Warner Corporation, where he is responsible for the development of new concepts in refrigerators and air conditioners. Jim holds nine patents on subjects ranging from ice makers to refrigerator door gaskets.

New Addresses: **Jay M. Berlove**, 4828 University Court, Niagara Falls, N.Y.; **Bernard E. Blood**, 1455 Commonwealth Avenue, Brighton, Mass.; **E. Fletcher Hosmer, Jr.**, The First Boston Corporation, 20 Exchange Place, New York, N.Y.; **James D. Kolb**, 3335 South Pollard, Tyler, Texas; **Donald B. Miller**, 811 Allawanda Drive, Haehn Bluffs, Largo, Fla.; **Bernard H. Paieivonsky**, 7533 B-2 Springlake Drive, Bethesda, Md.; **Donald E. Pickles**, 889 Kentwood Drive, Brigham

City, Utah; **Fortney H. Stark, Jr.**, Oak Hill Farm, 313 Cross Road, Danville, Calif.; **George A. Wallace, Jr.**, 1721 Camelot Drive, Hendersonville, N.C.; **Stanley H. Zisk**, 51 Follen Road, Lexington, Mass.; **Edward K. Durian**, V.A. Hospital, Brockton, Mass.; **Edward A. Colbeth**, 159 Cottage Road, Wyckoff, N.J.; **Edmund C. Butler**, 4 Crestview Drive, Hampton Falls, N.H.; **Stanley F. Brink**, R.D. #2, Goshen, N.Y.; **Olgiard C. Pruszanowski**, Univac, 36 State Highway, Hanover, N.J.; **Joseph Y. Rodriguez**, 49 Doncaster Avenue, West Islip, L.I., N.Y.; **William C. Wanbaugh, Jr.**, 2604 Weller Road, Silver Spring, Md.; **George J. Fuld**, 469 Sandhurst Road, Akron, Ohio; **Han van Gelder**, 712 Newfield Avenue, Stamford, Conn.; **Charles A. Homsy**, 10019 Inwood Drive, Houston, Texas; **Donald B. Miller**, 8990 Mockingbird Lane, Cincinnati, Ohio; **Henry J. Myers**, Bartlett Lane, Stamford, Conn. . . . Look forward to hearing from you soon.—**Norman R. Gardner**, Secretary, 100 Memorial Drive, Cambridge, Mass.

'54

I take pen in hand the day following a long debate-filled evening at Town Meeting. The fountain of democracy is both an interesting and a wonderful institution, but very inefficient. Still, it has the wonderful advantage of letting you know where your neighbors stand. A little better idea of where you stand—work, etc.—would be appreciated. If you have lost your touch with pen and typewriter, maybe you can convince your wife that she should write. . . . **Charles H. Goodman** has been elected a vice-president of Materials Service, a division of General Dynamics and the president of Darlington Brick, a newly acquired face brick manufacturer. Charles has been with Materials Service since graduation. He had been director of research for the Chicago based firm and was active in the development of a light weight aggregate, "Materialite," and prestressed concrete products. . . . Our illustrious President, **Chuck Masison**, has offered his leadership capabilities to his community, Westwood, by running for election to a five-year term on the Planning Board. . . . **Raymond A. Bessette**, whose S.M. is from M.I.T., has been named a vice-president, director, and voting stockholder of Moore and Sohley, Inc., one of the largest specialist firms on the New York Stock Exchange. He and his wife, Doris, and four daughters live in Ridgefield, Conn.

In looking through this year's directory for 1964-1965 of the Alumni Association, the following offices were noted. Our class representative on the Alumni Council is **Bob Anslow**, who also serves as secretary of the Route 128 Club of M.I.T. . . . **Wally Boquist** is an associate of the Council. . . . **William S. Wheeler, Jr.** (G) is an alumni representative on the Corporation Visiting Committee for the Sloan School of Management. . . . **Mariano Avelado** is secretary of the M.I.T. Club of Venezuela. . . . **Steven E. Laurens** is the vice-president of the M.I.T. Club of

'53

Your secretary had a very enjoyable luncheon meeting with your president—

Cincinnati. . . . In Haifa, **Falk Gadish** (G) is one of the vice-presidents of the M.I.T. Club of Israel. . . . The M.I.T. alumni of Long Island have as their chairman, **Duane Yorke**. . . . **Peter R. Pettler** of Sarasota is vice-president of the M.I.T. Club of Southwest Florida, while in Tampa, **Demetrios J. Athan** is secretary-treasurer of the M.I.T. Club of Central Florida. . . . Yet another vice-president is **E. David Howes**, serving the M.I.T. Club of Central New York. . . . Here in the Boston area **Rolf Kates** is second vice-president of the West Suburban M.I.T. Club. . . . Remember to write. —**Bob Evans**, Secretary, 43 High Street, South Acton, Mass. 01771.

'55

Reunion fever has hit us hard, but we do not see anybody complaining except the busy clerks who are handling your reservations. The turnout has been phenomenal, and from what we can gather, substantially greater than past history might lead us to predict. If you have not registered yet, you had better be quick because the Provincetown Inn is filling up rapidly. The dates are June 12-14, and we are looking forward to seeing you there. . . . A Sigma Nu, '55 pre-reunion get-together took place in Boston recently. Attending were **Bart Roessler**, **Roger Mackay**, **John Wing**, **Jim Storey**, and our class reunion chairman—**Glenn Jackson**. Among other things, Glenn was trying to convince Naval Architect John that he should conjure up something on which to sail the class out to Provincetown for the reunion. Last we heard, John was "taking the matter into consideration." The group also toasted Bart's recent appointment as assistant professor at Brown University. . . . One of the more exotic questionnaire returns came from **Alan Glueck**. Al has been at the University of Cambridge (England) and expects to receive a Ph.D. in June. He and Nancy have one girl and one in the basket, spend their vacations skiing in the Alps and touring in Europe, and have visited several Iron Curtain areas and North Africa. Al's thesis will probably yield a patent or two. He and Nancy are definitely planning to attend the reunion. I'm sure we're all anxious to hear Al with a British accent! . . . Another interesting questionnaire was returned by **Bill Bohnert**, who is scenic designer for the Ed Sullivan Show in New York City. After leaving Tech he took a three-year graduate program at the Yale Drama School in stage design and received a master of fine arts degree in 1958. Some interesting outside projects have included scenery and lighting design for industrial shows such as Owens Corning Fiberglas and Oldsmobile. He has recently completed work as an architectural consultant for the complete studio renovation of an independent television channel in New York City. I'm sure that Bill and Pamela's two little boys are really proud of their daddy, who must be the only man on the

block who knows the Beatles personally. . . . **Joyce Davis** has received a professional engineer's certificate from New York State and has been elected secretary of the New York metropolitan section of the American Nuclear Society. After graduation she received her M.S. from the University of Rochester and carried on further graduate studies at Yale in biophysics and at N.Y.U. in environmental health and nuclear engineering. She is currently a nuclear engineer with Burns and Roe, Inc., in New York City. . . . An interesting questionnaire was returned from a town with the unlikely name of Chagrin Falls, Ohio. **Robert Dettmer** has recently started his own firm for managing common stock portfolios. Previously he had been with the management consultant firm of Booz, Allen and Hamilton. Bob received the M.B.A. from Harvard Business School in 1957. I hope that he and Pat will be able to attend the reunion, since with all the decibellies that have been recorded indicating unusually high affluence quotients, there must be a lot of cash rattling around waiting for astute investment. . . . **John Dixon** is now a senior editor with Architectural Forum magazine in New York City. He, Carol, and the two kids are living in Brooklyn where reading and writing about architecture, marriage, and photography "make life interesting." . . . After leaving M.I.T., **Edward Elizondo** received the Ingeniero Electricista degree from the University of Habana, Cuba, in 1959 and, in 1964, the M.S.E.E. degree from Brooklyn Poly. He is currently a project engineer for the Blonder-Tongue Labs in Newark, N.J. In his spare time Ed has designed a digital computer for sport car rallies. If you have a vest pocket model, Ed, why don't you bring it along to the reunion so we can calculate to the microsecond who the chug-a-lug champions are and possibly establish a new world's record?

Robert Enzmann received the Ph.D. from Uppsala (Sweden) and is currently a staff scientist with AVCO in Wilmington, Mass. His work involves space mission planning and has included expeditions to the Greenland Ice Cap, S.W. Africa, the Mediterranean, and Scandinavia. Bob and Joanna (M.I.T. '58) have two boys and two girls and reside in South Braintree. . . . **Milon Essoglou** has been involved in the very timely problems connected with how to dig big holes in the ground with nuclear explosives. He is a soils engineer with the Roland F. Beers Company in Alexandria, Va. Milon is attending night classes at George Washington University toward a M.S. He, Isobel, and their daughter live in Arlington, Va. . . . **Bill Friedman** writes from Des Moines of his work as a women's accessory buyer for Younker Brothers, Inc. The work has included a very interesting European buying trip early this year. Bill, "Johnnie," and the two girls reside in Des Moines and plan to travel back east for the reunion. . . . **Bill Lehmann** is currently a resident at the department of surgery at Duke University Medical Center. Bill took the M.S.E.E. at M.I.T. in 1957 and received the M.D. at Yale in 1963. He and Gail have two children, are

living in Durham, N.C., and will be at the reunion. . . . **Norm** and **Louise Poulin** are living in Wayne, N.J., where Norm is very active in community doings. Aside from his work with the Junior Chamber of Commerce, he is chairman of the Mayor's Personnel Practices Committee and in addition manages to find time to average 176 in two bowling leagues. Norm is assistant sales and marketing manager for Bomyte Company and Belding Chemical Industries, sister companies in New York City. . . . Most of the people mentioned here have indicated that they are attending the reunion. Why don't you "come on up" also?—Co-secretaries: **Mrs. J. H. Venarde (Dell Lanier)**, 2401 Brae Road, Wilmington, Del., 19803; **L. Dennis Shapiro**, Aerospace Research, Inc., 130 Lincoln Street, Boston, Mass. 02135.

'56

In the March 13, 1965, issue of Chemical Week the Badger Company of Cambridge, Mass., sponsored a 12-page color advertisement. Page 11 of this ad featured the company's new computer system for designing chemical plant piping schematics with several pictures of **Ted Korelitz**, a founding father of the unique program. . . . **Lamar Washington** has been made science consultant to the Boston Chamber of Commerce. Lamar operated his own consulting firm in Natick, Mass., and has served as director of the National Youth Service Center, Nason College, Maine, and at Wesleyan University, Middletown, Conn. Lamar will advise the Boston Chamber about major federal programs which might be persuaded to locate in the local area. . . . In a recent letter, **Forrest Getzen**, associate professor of chemistry at North Carolina State, advises us that in January he and his family left for two years in Kabul, Afghanistan. Forrest will develop a chemistry curriculum as a member of the United States team which is forming an engineering school in Kabul.—**Bruce B. Bredehoft**, Secretary, 16 Millbrook Road, Westwood, Mass. 02090.

'57

I'm writing this month's column at the M.I.T. Faculty Club where in a few minutes I will be joining **Mal Jones**, **Ed Roberts** and **Jay Hamneress**, members of the class' executive committee, for a dinner meeting at which reunion plans for 1967 will be discussed. **Harry Duane**, who had been working with us earlier on reunion plans, recently was transferred to Milan, Italy, by the Norton Company. Harry will be managing director of Mole Norton S.P.A., a Norton subsidiary. Before taking his new assignment Harry was assistant controller of the firm's abrasives division. . . . **Ed Roberts** just

arrived and told me that he has met the "publish or perish" test and has been promoted to associate professor at M.I.T. His recent book, "The Dynamics of Research and Development," published by Harper Row, is apparently doing well in the market place and royalties are flowing in. . . . Mal Jones, who is heading up advance reunion arrangements, has passed his orals and his language exams and is now starting his thesis. How he succeeded in the German exam when he can't distinguish between bratwurst and knackwurst at Jake Wirth's, I am not able to comprehend. Mal will be an instructor in the fall in the computer area. . . . Dinner is now over and a consensus has been reached that our reunion in 1967 will be held at Jug End, a resort in the Berkshires. Harry visited Jug End at Mal's request a few month's ago and reported in a long letter that he considered it an excellent spot for the reunion. The facilities appear to be very complete and the setting excellent. Mal plans to contact **Gary Dischel**, our class president, to help in negotiating the financial aspects of the reunion with the management at Jug End. Gary, as you know, is now assistant general manager of The Kenmore Hotel in Boston. You will be hearing more about the reunion plans in the months to come. . . . One last note: **Michael Schmid** was married to the former Mary Elizabeth Cronin in Mount Vernon, N.Y., on February 20.—**Frederick L. Morefield**, Secretary, 1A Acorn Street, Boston 8, Mass.

'59

'Twas a dry, dry month—no letters, no hearsay, just a few press clippings filtered through the alumni office. It's just as well, though, because it's Monday morning (the due date for these notes) and a too large weekend has just slipped into oblivion, taking my energy with it. . . . **Dick Desper's** studies here and his doctoral work at the University of Massachusetts are bearing fruit: it looks as though he's going to be '59's first representative to the astronaut program. Dick was recommended by the American Science Society last year, and has since received an offer from NASA to take the physical exam and training for the moon shots scheduled in the 70's. Let us know more about this, Dick; I'm sure that the class would be very interested. I might add that we may be hearing from other potential spacemen, too, because NASA has a big drive on now to get civilian astronauts with doctorates in physics, propulsion, and related fields. . . . **James Conklin** is now an assistant professor of physics at the University of Florida, associated with the quantum theory group. . . . **Peter Kuempel** has received his Ph.D. in biochemical sciences from Princeton. . . . **Leon Glicksman**, formerly an assistant professor of M.E. at the Institute, has fallen victim to his R.O.T.C. commitment and is now a first

lieutenant with the Army Aviation Material Command in St. Louis. . . . **Tom Paprocki** has finished a government assignment in airport safety in Israel, and has returned to this country with his American bride, June Burroughs, whom he married in Jaffe last December.

James Hodder is vice-president of Abt Associates, a new Cambridge consulting firm specializing in combining social sciences, computer model simulation, and operations analysis and systems engineering. . . . **Gerald Schroeder** has published a paper entitled "Large Volume Scintillation Chamber for Radon Counting" in the October, 1964 Review of Scientific Instruments:

That's all for now, but I'll soon be back with another stirring episode of "Fifty-Niner, Where Are You?" Perhaps we shall pick up many exciting news tidbits and you will be in the next installment. Tune in next month and see.—**Glenn W. Zeiders, Jr.**, Secretary, 3 Rose Avenue, Watertown 72, Mass.; **Wayne L. Worrell**, Assistant Secretary, Hearst Mining Building, Lawrence Radiation Lab, Berkeley, Calif.

'60

I was pleased to receive a letter from **Charles McCallum**. He writes that he is practicing law in Grand Rapids, Mich., with the firm of Warner, Norcross and Judd. To quote from his letter: "We recently had **Steve Scheinberg** here as a house guest for a couple of days. He is still teaching math at Princeton but will leave there next year to enter Harvard Medical School. Anybody who would like to have a Ph.D. mathematician as his doctor should just give Stephen a couple of years. I have also just had a letter from **Leonard Charlap** who entered M.I.T. with our class although he graduated after three years and technically is considered a member of the Class of '59. Lenny is now teaching on the 18th floor of a 63-floor apartment building amidst a collection of goldfish, classical record and other items. I am sure that Lenny could be contacted through the math department of the University of Pennsylvania." Charles' address in Grand Rapids is 1254 Northfield Drive, N.E. . . . Other news: **Dick Higgins** has begun teaching in the College of Liberal Arts of the University of Oregon. Dick is an assistant professor of physics and took his doctorate work at Northwestern University. Dick will be married in June to Barbara Kay Cosby of Northbrook, Ill., who will graduate from the University of Illinois in June. . . . **Dean Webber** was recently promoted to special projects engineer for the Fafnir Bearing Company of New Britain, Conn. Among the assignments Dean has held since joining the company have been technical advisor at the company's plant in Lisburn, Northern Ireland, and at a licensee plant in India. . . . See you at the reunion next month.—**John B. Stevenson**, Secretary, Partridgeville Road, Athol, Mass.

'61

It is a pleasure to announce that **Andrew Braun** has been appointed acting secretary for 1965-1966. You will recall that my plans call for two years overseas, starting next fall, and that we have been looking for someone to take over the column and carry it till our first reunion in June 1966. Andy has volunteered, and I certainly hope you will continue to treat him as well as you have me in the past few months. Andy joined us in our third year at M.I.T., transferring into Course VIII from Middlebury College. Between graduation and last September, he worked at M.I.T. at the Radioactivity Center. He is now at Harvard, in the School of Public Health, doing doctoral work. Andy married Helen Osborne, of Cleveland Heights, Ohio, last September; the Brauns make their home on Beacon Street in Brookline.

The rest of this month's notes consists of news clippings, some a bit on the elderly side, which have recently made their way to my desk. **Anthony Lewis** co-authored a paper in the Review of Scientific Instruments on a scintillation counter for radon counting.

Ralph Santoro was likewise a co-author of a paper, this one on the magnetic properties of chromium chrysoberyl in the Journal of the American Ceramic Society. . . . **Michael Willingham** departed for Uganda January 1, under Peace Corps auspices; he will teach in secondary schools there. Prior to departure, he underwent a 12-week training course at Columbia, taking courses in Swahili, British educational methods, U.S. history, and other pertinent topics. . . . **William Sacks** has been awarded one of six fellowships for graduate study in traffic engineering offered by the Insurance Institute for Highway Safety of Washington, D.C. He is a traffic engineer in the Pennsylvania Department of Highways and began a year of study at Yale last September. The fellowship provides tuition and living expenses. . . . Likewise a fellowship winner, **Emil Signes** is in Cambridge, England, on a research fellowship awarded by the National British Metallurgy Research Association. Prior to leaving for Cambridge, Emil had earned his M.S. in metallurgy here at M.I.T. On his way to England last fall, he stopped off for a month in Spain, where he visited members of his family. Although most of his work will be in Cambridge, he plans to visit research centers on the continent. Congratulations to both these classmates on their fellowship honors!—**Joseph Harrington 3rd**, Secretary, 22 Hidden Road, Andover, Mass. 01810.

'62

After receiving his master's degree in industrial management at M.I.T., **Randy Kunz** went to work as a business analyst with Humble Oil Company in New Jersey. He and his wife have one child, a

girl, who was born on December 2, 1964. . . . Lieutenant (jg) **Paul J. Marto**, who received an M.S. from M.I.T. in 1962, has been awarded a doctorate degree in nuclear engineering at M.I.T. Lieutenant Marto was a company commander in the N.R.O.T.C. and was chosen to appear in "Who's Who in American College and Universities, 1960." He and his wife will be in Monterey, Calif., where he will teach nuclear engineering at the Navy Graduate School. . . . **Alan Blackington** recently joined Digital Equipment Corporation in Maynard, Mass. He is a systems programmer at Digital, a leading producer of digital computer products and systems. Previously, he was with Honeywell, Inc., in Wellesley Hills, Mass., as a programmer. He is married to the former Bette Wood of Warwick, R. I., and they have two children: Theresa, age two, and Marguerite, five months. . . . **Henry McCarl** wrote telling his whereabouts and about his wife Louise and their 15-month-old daughter, Kathy. The three of them spent a summer on the Island of Dominica, B.W.I., where Henry was doing some consulting work for a pumice mining company. Upon their return, he finished his thesis and received an M.S. in geology from Penn State. He transferred into the department of mineral economics and hopes to finish his Ph.D. in mineral economics in June of 1966. He has been appointed associate editor of Rock Products, a trade magazine in the field of non-metallic rock and mineral production; Henry worked with The Tech, while at M.I.T. His doctoral dissertation, "The Mineral Aggregate Industry in the Vicinity of Baltimore, Maryland," is being sponsored by the U.S. Bureau of Mines.

As more and more of you finally get settled down after graduate schools and job relocations, I hope that you will begin to reestablish contact with M.I.T. If you write in concerning your whereabouts, marital status, job or military classification, and educational exploits, your story is bound to be printed in this column. Some of you might find that you're living in the same area (or even working for the same company) as some M.I.T. buddy. These contacts can help you in your business careers as well, and can even help when you're in a strange city on a business trip and need someone to talk to who speaks the same language. So please write to me in my island paradise. I will be most happy to hear from you and pass the news along to classmates through this column.—**Jerry Katell**, Secretary, c/o Oceanic Properties, Inc., P.O. Box 2780, Honolulu, Hawaii.

'64

I hope you all have received the class mailing list that was sent to everyone in late February. This list gave the most recent addresses we had at the time plus the current job or school of each per-

son. The class officers hope that this list will promote communication between members of the class. Preparing and mailing the list cost us over \$100, though our treasury is nearly exhausted due to the "100 Days to Go Party" and the beer blast last year. Thus we asked each member of the class to contribute \$3 to pay for this and future expenses for the next several years. So far we have had a fair response. Below are those who have contributed and the news that they sent: **Andrew Achterkirchen** is living in Watertown, Mass. . . . **Robert Beck, Jr.** is in graduate school at Michigan State with an assistantship. . . . **Joe Casper, Jr.** sent in his contribution. . . . **George Chen** is living in Providence, R.I. . . . **Barbara Cohen** is at Albert Einstein College of Medicine and would love to hear from the other coeds in our class. . . . **Charles Counselman, 3d**, is living in Watertown with Andrew Achterkirchen. . . . **Lee Erlebach** is living in Seattle. . . . **Al Gamse** is in Pikesville, Md. . . . **John Gilchrist** is in Cambridge. . . . **Leon Kaatz** is working on his M.B.A. at the University of Chicago. He is engaged to Jane Snyder of Simmons College and Newton, Mass., and will be married this June 27. . . . **Frank Kofron, Jr.** is in graduate school at M.I.T. . . . **John Ludutsky** is at Harvard Business School. . . . **Jerry Luebbers**, our class vice-president, is also there.

Richard McEntire is studying at the University of Minnesota. . . . **Cary Mock** is living in Syracuse, N.Y. . . . **Jim Monk, Jr.** is living in Akron, Ohio with his wife, formerly Patricia Sullivan of Oakhurst, N.J., and the B.U. School of Nursing. . . . **Mrs. Stuart Newberger (Priscilla Marrs)** is with her husband at the University of California where he teaches math. Stuart received his Ph.D. at M.I.T. last year. . . . **Jon Orloff** is studying at Pittsburgh, not Pennsylvania as I had incorrectly said in a former issue. . . . **Bob Papadic** is at Harvard Business School. . . . **Bill Petersen** is doing graduate work in meteorology at N.Y.U. . . . **Jim Rome** is a teaching assistant in 6.023 and working for his M.S. at M.I.T. . . . **Drew Roscos** is at Western Reserve Medical School and says its "like swallowing an elephant." . . . **David Russell** is living in Rochester, N.Y. . . . **Bob Scott** is working for the administration at M.I.T. . . . **Don Seifkes** sent in his contribution. . . . **Bruce Stevens** will get his S.M. this June at M.I.T. and will spend the summer in Europe with Dave Nickles, '62. . . . **Len Theran** is at Stanford Business School. . . . **Allen Wirzburger** is a project officer at the Navy Marine Engineering Lab in Annapolis while serving his two years. . . . Two more contributions were from people unknown, one from Arthur whose last name I could not make out, and one from Port Crane, N.Y. with so many names on the check that I did not know who was who! Further contributions are certainly welcome and more names of donors will be in the next issue. As long as you are enclosing a check, why not give me some gossip? . . . Now for news from others: **Walter**

Anderson, Jr. was married to Betsey Eggleston of Jackson College last August. . . . **Dick Bair** of Winnetka, Ill., left in January for two years in Nigeria with the Peace Corps. He is teaching physics in Efik, the language of that section. . . . **Howard Cedar** has been awarded a fellowship at N.Y.U. Medical School where he is now a student. . . . **Pete Cheshbrough** is working on a Ph.D. in Industrial Engineering at Georgia Tech with a N.S.F. Traineeship. He worked last summer for the NASA Manned Spacecraft Center. . . . **Jerry Dassel** has an article in the press about his discovery last spring of a new crystal structure in a compound of three metals—tantalum, palladium, and rhodium. This was in connection with his thesis. As a result of this he was awarded a research grant for graduate work in metallurgy at Purdue, where he is currently studying. He presented his discovery to the American Institute of Metallurgical Engineering at their Chicago convention in February. The discovery could prove beneficial to aircraft designers. . . . **Michael Dertouzas** received his Ph.D. from M.I.T. and is now an assistant professor in E.E. there. . . . **David Fahrland** was married to Candace Ann Watson last August in Connecticut. He is now at Brooklyn Polytechnic. . . . **Eugene Grumer** married Susan Moldavi shortly after receiving his S.M. in Chemical Engineering last June. . . . **John McFarland** won one of Harvard's coveted Graduate Prize Fellowships in the department of economics where he is now studying. He was one of 45 winners in five departments at Harvard. . . . **Paul Rovner** is now living in Oakland, Calif. . . . **Paul Sapounakis** was married last June. He spent four months in Europe on his honeymoon—mostly in Greece. He is now an architectural consultant for Pappas Realty Construction Corporation working with several multi-million dollar projects. . . . **Marty Stieglitz** is working for Boeing in Seattle as an engineer on the minuteman system. He became engaged to marry Miss Ann Siemen this summer. . . . **Howard Straus** was married December 31, to Abby Feller, a graduate of Bennett and Emerson. He is a systems engineer with IBM. . . . **Robert Zimmermann** received his Ph.D. in biophysics last June. He married Linda Saputelli, a graduate of Sarah Lawrence, last fall. He is doing post doctoral work at M.I.T. under a grant from the National Institute of Health. The couple will go to Russia this fall under the cultural exchange program. . . . That's all for now. However, don't forget to use your class list. It was meant to spark some communication between members of the class and that includes the secretary. . . . We are anxious for your \$3 contributions to the sadly depleted class funds. . . . I would really like to know Arthur's last name, and the identity of all those folks living in Port Crane, N.Y. . . . Only two more issues of the Review until the fall so please, right now, why don't you let me hear from you.—**Ron Gilman**, Secretary, Dane Hall 204, Cambridge, Mass. 02138.

Club News



Western Pennsylvania Crowd Applauds Dean Wiesner

At one of the largest meetings of the M.I.T. Club of Western Pennsylvania, Dean Jerome Wiesner, of the School of Science at Tech (and former Science Advisor to President Kennedy), presented a thought-provoking discussion of the impact of science in public affairs. The meeting, on March 1, began with dinner in the banquet hall of the Webster Hall Hotel in Pittsburgh's Oakland section. Following dinner, the group adjourned to the main auditorium of the Mellon Institute to hear Dr. Wiesner's remarks. Local sections of the American Nuclear Society and the American Society of Mechanical Engineers were invited by Tech alumni to join the club at this meeting. Dr. Wiesner was warmly greeted by the large crowd, and his words drew enthusiastic applause.—Harry F. Raab, Jr., '50, Assistant Secretary, 5053 Grove Road, Pittsburgh, Pa. 15236.

All-Florida Alumni Meeting Is Held in Tampa

James R. Killian, Jr., '26, and Mrs. Killian were the honored guests at the First Annual Florida Alumni Meeting held in Tampa, January 22. Some 90 alumni wives and guests, from all parts of the state lunched at the Tampa Airport Motel. At the head table also were Mr. and Mrs. William H. Mills; '34; Mr. and Mrs. James F. Healey, '41; Mr. and Mrs. Donald F. Burke, '46; and Mr. and Mrs. D. James Athan, '54. A "starter" check for the Florida M.I.T. Alumni Scholarship Fund was presented to Dr. Killian by Harold Radcliffe, 41, Regional Chairman of the Educational Council. Donald E. Burke, '46, President of the Central Florida Club, presented Dr. Killian with a plaque commemorating this most enthusiastic meeting.

This first annual all-Florida meeting was concluded with seminar discussions on the following topics: Fostering the goals of the Institute in Florida; improving the activity and interest in alumni clubs in Florida; improving the effectiveness of the fund drive programs; fostering better intercommunication among Florida alumni and Expanding the scope and effect of the Educational Council. Reports of the seminar panels will be distributed to all Florida clubs shortly, and an all-Florida list of alumni will be compiled and made available.—Demetrios James Athan, '54, Secretary, 825 S. MacDill Avenue, Tampa, Fla. 33609.

Luncheon Meetings Successful in Ohio

Every first Wednesday of the month the M.I.T. Club of Central Ohio meets at the Columbus "University Club" for lunch. Each month we gain a few more recruits and we welcome others coming into our area. The conversations at these informal lunches are always stimulating and cover many subjects. Al Hall, '27, is gradually reducing the contamination of Ohio's streams from foaming detergents. Vaughn Beals, '48, enumerated for us the many problems encountered when North American Aviation engineered the "Haystack" antenna. Professor Ed Ayres, '22, leads an interesting life teaching electricity at O.S.U. and commuting to Colorado in his spare time on government consulting projects. Next months problems may be even more challenging.

Our social chairman, Hugh Flomenhoft, '47, arranged a joint meeting with the Harvard Business School Club on February 16 at the Christopher Inn. Afterwards, Edmund Kuehn of the Gallery of Fine Arts talked to us about modern art and escorted us through the gallery.—Wood Thomas, '39, Secretary, 188 N. Cassingham Road, Columbus 9, Ohio.

Alumni President Visits Kanawha Valley Club

Through the power of the presence of Donald F. Carpenter '22, President of the Alumni Association, the March 2 Executive Committee meeting of the M.I.T. Club of the Kanawha Valley turned into a full-fledged club dinner meeting. With John H. Howell, '35, presiding Mr. Carpenter talked about Tech's current problems and triumphs. Present were Holden M. Dougherty, '22; Charles H. Gilmour, '31; Alexander S. Giltinan, '47; Philip A. Hendee, '26; Wilburn H. Hoffman, '46; John Howell, '35; Daniel G. Hulett, '42; Joseph C. Jefferds, Jr. '40; Ralph L. Kelley, Jr. '42; Robert S. Leitheiser, '55; Richard P. Little, '42; Gabriel H. Nahigian, '52; Robert P. Slusser, '47; and Benjamin T. Woodruff, '36.—Daniel G. Hulett, '42, Secretary-Treasurer, 650 Gordon Drive, Charleston, W. Va. 25314.

Washington Club Hears About M.I.T. and Mars

Donald F. Carpenter, '22, discussed progress at M.I.T. and plans for future activities of the Washington, D.C. Club at a dinner meeting on February 17. About 50 attended.

The downtown luncheon group got off to a flying start on February 10, in the palatial environs of the Brookings Institution, when 20 alumni and guests heard Dr. Philip Abelson assess the probability of finding life on Mars.—J. J. Phillips, Jr., '38, Publicity Chairman, 3606 Fulton Street, N.W., Washington, D.C.

John Harsch, '43 Dies in New Haven

We were saddened by the sudden death of John Harsch, '43, after a brief illness. In the New Haven Club, he served most recently as governor-at-large and previously in other club positions, including the presidency. He was also very active in Educational Council work.—S. A. Semonian, '50, Secretary, 302 Annrose Drive, Orange, Conn.

Dr. Killian in Los Angeles; Bronze Beaver Presented

On March 8, the M.I.T. Club of Southern California heard Dr. James K. Killian talk on "The Revolution in Education—M.I.T. Style." The 142 alumni and friends present were moved to a standing ovation. Robert Welles, '15, was formally presented the Bronze Beaver which had previously been presented in absentia at the alumni officers conference in Cambridge.

The club will tour the new Douglas Missile and Space Systems Center on May 11.—Bradford Bates, '59, Secretary, 8344 Chase Avenue, Los Angeles, Calif.

St. Louis Group Tours Granite City Steel Plant

Donald Carpenter, '22, spoke at a January 18, dinner meeting of the M.I.T. Club of St. Louis board of governors. Long range policies were discussed and the reasoning behind these policies.

On February 25, club members trudged through the snow on a plant tour of the Granite City Steel Company. To fortify the 26 members before this adventure, a social hour and smorgasbord was provided.—Ronald H. Lieber, '55, Secretary, 331 Chestnut Avenue, Webster Groves, Mo.

The Club Meeting Calendar

M.I.T. Alumni gatherings announced in time for listing in this issue of The Review will be as follows:

City	Date	Speakers	Secretary
Newark	May 5	James R. Killian, '26	Martin King, '44
Boston	May 13	Columbus O. Iselin	Bruce Bredehoft, '56
Philadelphia	May 15	James R. Killian, '26	John B. Murdock, '41
Pittsfield	May 17	Klaus Liepman	Arthur W. Brusila, '48

Alumni Day

Is June 14

THE WORLD WE LIVE in is this year's Alumni Day theme at M.I.T.

That forenoon alumni will tour the new Center for the Earth Sciences, 20 stories high, and other sights on the fast-changing campus along the Charles. They will gather for luncheon in the tents on the Great Court for the presentation of the 25-year, 40-year and 50-year Class Gifts and the traditional report by President Stratton.

That afternoon, Dean Jerome B. Wiesner of the School of Science will chair a discussion at which four noted alumni will speak:

Patrick M. Hurley, '40, Professor of Geology

Thomas F. Malone, '46, Director of Research,
Travelers Insurance Company

William S. Von Arx, '55, Professor of Oceanography

John V. Harrington, '58, Director of the Center
for Space Research

Following the outdoor Reception and Cocktail Party and the Annual Alumni Banquet, Arthur Fiedler will conduct the Boston Pops Orchestra in a special program from the stage of Kresge Auditorium.

Class Reunions that Same Weekend . . .

1900: Reunion Chairman, Elbert G. Allen, 11 Richfield Road, West Newton, Mass.; M.I.T. Campus June 11-13.

1905: Reunion Chairmen, Herbert Kenway, 30 Valentine Park, West Newton, Mass.; Fred W. Goldthwait, Box 32, Center Sandwich, N.H.; Charter House Motor Hotel, Cambridge, Mass., June 11-13.

1912: Reunion Chairman, Albion Davis, 38 Sabrina Road, Wellesley, Mass.; Stanley McCormick Hall, M.I.T. Campus, June 12-14.

1913: Reunion Chairman, George P. Capen, 60 Everett Street, Canton, Mass.; Claussen's Inn, Cape Cod, June 11-14.

1915: Reunion Chairman, Azel Mack, 100 Memorial Drive, Cambridge, Mass.; New Coonamessett Inn, Falmouth, Mass., June 11-13; Class Cocktail Party, Faculty Club, June 14.

1916: Reunion Chairman, Ralph Fletcher, P.O. Box 71, West Chelmsford, Mass.; Chatham Bars Inn, Chatham, Mass., June 11-13.

1918: Reunion Chairman, F. Alexander Magoun, Jaffrey, N. H.; Wianno Club, Osterville, Mass., June 11-13.

1920: Reunion Chairman, Harold Bugbee, 21 Everett Road, Winchester, Mass.; Red Lion Inn, Stockbridge, Mass., June 11-13.

1925: Reunion Chairman, David Gold-

man, 141 Milk Street, Boston, Mass.; Trade Winds Hotel, Craigville, Mass., June 11-13.

1930: Reunion Chairman, Joseph Harrington, Jr., 1 Cherry Street, Wrentham, Mass.; Oyster Harbors Club, Osterville, Mass., June 11-13.

1935: Reunion Chairman, R. W. Foster, 44 Standish Circle, Wellesley Hills, Mass.; Chatham Bars Inn, Chatham, Mass., June 11-13.

1940: Reunion Chairman, R. A. Bittenbender, 85 Meriam Street, Lexington, Mass.; Baker House, M.I.T. Campus, June 11-14.

1945: Reunion Chairman: Robert Maglathlin, Electronics Systems Inc., 533 Main Street, Acton, Mass.; Wychmere Harbors Club, Harwichport, Mass., June 11-14.

1950: Reunion Chairmen: Warren Marcus, National Radio Co., Inc., 37 Washington Street, Melrose, Mass.; Stanley Chaikind, Marcon, Inc., 30 E. 42nd Street, New York, N.Y.; Sea Crest Hotel, Cape Cod, June 11-14.

1955: Reunion Chairman: Glenn D. Jackson, 3d, 24 Lee Street, Marblehead, Mass.; Provincetown Inn, Provincetown, Mass., June 11-14.

1960: Reunion Chairman: E. Gerald Hurst, Jr., 9 Farquhar Road, Newtonville, Mass.; Wentworth-by-the-Sea, Portsmouth, N.H., June 11-14.

Northern Californians Hear Dr. Killian Report Changes

The Northern California alumni and their wives turned out en masse at a meeting on the San Francisco Peninsula to hear Dr. James R. Killian, '26. Dr. Killian talked about the great changes in the Institute over the last few years—largely a result of the tremendous support given to the Second Century Fund. He indicated that the buildings were getting higher and the parking scarcer.

Dr. Killian was introduced by Dr. William Shockley '36, Nobel co-laureate for the invention of the transistor. The meeting was presided over by Dr. Lionel S. Galstaun, '34.

New officers were nominated by Royce Greatwood, '24, and seconded by Richard Perry, '25. The nominees who were elected by acclamation were: Lionel S. Galstaun, '34, (incumbent), President; George Bond, '57, Paul P. Shepard, '53, Gilman Murray, '44, Vice Presidents; Roger S. Borovoy, '56 (incumbent), Secretary-Treasurer; and Austin Marx, '49, and Robert Spivock, '62, Assistant Secretary-Treasurers. The turnout for a meeting 40 miles away from downtown San Francisco was most encouraging. This meeting got the club off to what looks like an unusually successful year to come.—Roger S. Borovoy, '56, Secretary-Treasurer, Fairchild Semiconductor, 313 Fairchild Drive, Mountain View, Calif.

Central Pennsylvanians Hear Educational TV Manager

The mid-winter meeting of the club took place February 24 at Spinner's Parisian Restaurant in Hershey. The program included a talk by Lloyd Kaiser, general manager of WITF-TV, Central Pennsylvania's new educational station. Mr. Kaiser explained the intended application of the television medium for the enrichment of the school curriculum as well as discussing the adult programming in the planning stages. Karl Katz, '50, of York was formally installed as president of the club and presided at the meeting, attended by 17 members and guests.—John A. Morefield, Jr., '56, Secretary, 419 Black Latch Lane, Camp Hill, Pa.

Detroit Club Year Marked By Program Variety

The M.I.T. Club of Detroit has held five dinner meetings in the last year. Each was followed or preceded by a different type of program, including a talk by a member of the General Motors Styling Studio, a visit to a local TV station, a meeting with vacationing Detroit area students, reports from the Institute by Professor John Wulff and Alumni Association President Donald Carpenter, '22, and a local plant tour. The meeting of 24 students with 33 graduates sparked reminiscences for the Detroit area alumni. The club's May meeting will include a program and the election of officers.—John C. Erickson, '55, Publicity Manager, 2025 Vernier Road, Grosse Pointe Woods, Michigan, 48236.

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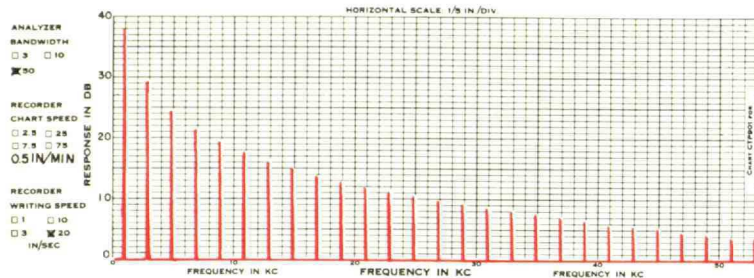
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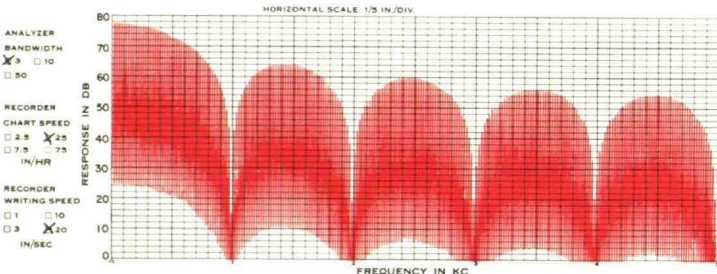
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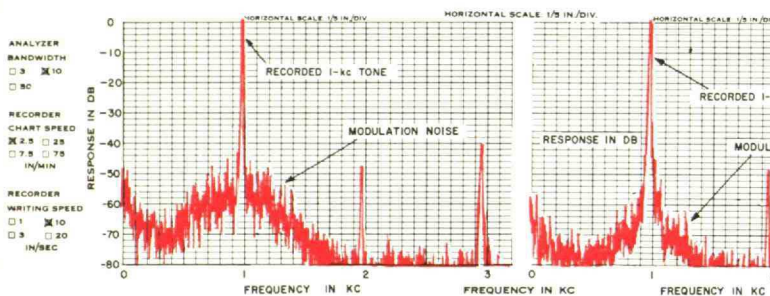
M. Fourier would have liked this Recording Wave Analyzer



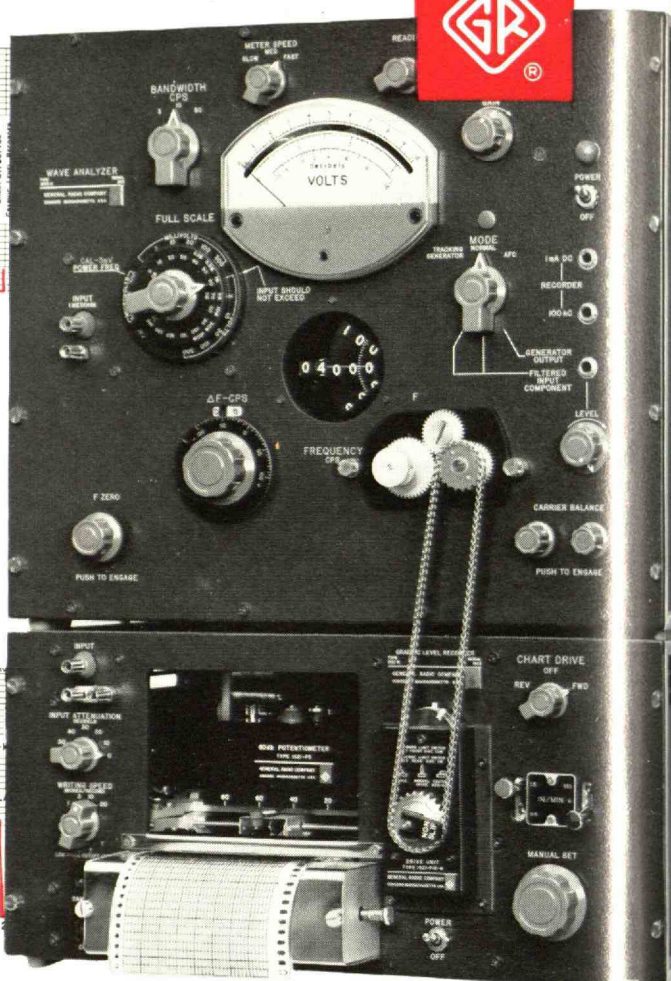
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- 80-dB dynamic range for recording. You can make uninterrupted recordings . . . no attenuator switching in the midst of measurements.
- High input impedance (1-M Ω) on all ranges.
- Voltage range is 30 μ V to 300V, full scale, in 15 ranges. Accuracy, \pm (3% of reading + 2% of full scale).
- As a "Tracking Generator," instrument is both a signal source (delivering 2V across 600 Ω) and a detector tuned to each other exactly.

For point-by-point measurements where the recorder is not used, these additional wave analyzer features add versatility and convenience

- Easy-to-read in-line frequency readout graduated in 10-cycle increments. $\pm 0.5\%$ calibration accuracy. Output for counter where extreme accuracy is desired.
- Incremental-frequency dial lets you fine-tune any component, covers ± 100 -cycle range independently of analyzer setting.
- AFC follows slowly drifting signals.
- Choice of 3 meter speeds - meter does the averaging.
- Excellent tunable filter. For example, the instrument can be used to produce 3-, 10-, and 50-cycle bands of noise over a tunable range from 20 c/s to 54 kc/s when a random-noise generator is connected to the analyzer.
- Price: Type 1900-A Wave Analyzer alone, \$2150; Type 1910-A Recording Wave Analyzer, \$3500 in U.S.A.

Write for Complete Information.

We believe M. Fourier's disciples will like this Analyzer, too.

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